The background of the cover is a high-resolution aerial photograph. The right half of the image shows a complex river delta system, likely the Tagus River, with numerous channels and distributaries flowing into the ocean. The land is a mix of green vegetation and brownish-yellow sediment. The left half of the image is a lighter, more ethereal view of the same or a similar coastal area, possibly showing the ocean's edge and some land features. The overall color palette is dominated by blues, greens, and browns.

Edited by
Mateus Kowalski and João Gil Antunes

PORTUGAL AND THE CONSTITUTION FOR THE OCEANS

**THE UNITED NATIONS CONVENTION ON
THE LAW OF THE SEA 40 YEARS LATER**

Foreword by António Guterres

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The United Nations Convention on
the Law of the Sea 40 Years Later

Edited by Mateus Kowalski and João Gil Antunes

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GLOSSARY |

1899 Hague Convention	Convention for the Pacific Settlement of International Disputes, done at The Hague, on July 29, 1899
1930 Hague Codification Conference	The Conference for the Codification of International Law, held at The Hague, from March 13 to April 12, 1930
1932 Harvard Draft Convention on Piracy	The Draft Convention on Piracy prepared by the 1930 Hague Codification Conference
1949 Geneva Conventions	Geneva Convention for the amelioration of the condition of the wounded and sick in armed forces in the field, August 12, 1949, 75 UNTS 970. 31; Geneva Convention for the amelioration of the condition of the wounded, sick and shipwrecked members of the armed forces at sea, August 12, 1949, 75 UNTS 971. 85; Geneva Convention relative to the treatment of prisoners of war, August 12, 1949, 75 UNTS 972. 135; and Geneva Convention relative to the Protection of Civilian Persons in Time of War, August 12, 1949, 75 UNTS 973. 287
1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas	Convention on Fishing and Conservation of the Living Resources of the High Seas, April 29, 1958, 559 UNTS 8164. 285
1958 Geneva Convention on the Continental Shelf	Convention on the Continental Shelf, April 29, 1958, 499 UNTS 7302. 311
1958 Geneva Convention on the High Seas	Convention on the High Seas, April 29, 1958, 450 UNTS 6465. 11
1958 Geneva Convention on the Territorial Sea and the Contiguous Zone	1958 Geneva Convention on the Territorial Sea and the Contiguous Zone, April 29, 1958, 516 UNTS 7477. 205
1958 Geneva Conventions	The 1958 Geneva Convention on the High Seas, the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas, the 1958 Geneva Convention on the Continental Shelf, the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone, and the 1958 Optional Protocol of signature concerning the Compulsory Settlement of Disputes
1958 Optional Protocol of signature concerning the Compulsory Settlement of Disputes	Optional Protocol of Signature concerning the Compulsory Settlement of Disputes, April 29, 1958, 450 UNTS 6466. 169

1994 Agreement relating to the implementation of Part XI of the Convention	Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of December 10, 1982, July 28, 1994, 1836 UNTS 31364. 3
1995 United Nations Fish Stocks Agreement	Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, August 4, 1995, 2167 UNTS 37924. 3
2012 PCA Arbitration Rules	The Arbitration Rules of the PCA, effective on December 17, 2012
ABNJ	Areas Beyond National Jurisdiction
Additional Protocol I	Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I), June 8, 1977, 1125 UNTS 17512. 3
Agreement between the State of the Netherlands and The Ocean Cleanup	Agreement between the State of the Netherlands and The Ocean Cleanup concerning the deployment of systems designed to clean up plastic floating in the upper surface layer of the high seas, done at the Hague, on June 8, 2018, <i>Staatscourant, Officiële uitgave van het Koninkrijk der Nederlanden</i> , No. 31907, July 6, 2018
Agreement for the termination of Bilateral Investment Treaties between the Member States of the European Union	Agreement for the termination of Bilateral Investment Treaties between the Member States of the European Union, SN/4656/2019/INIT, Official Journal (L. 169), May 29, 2020, p. 1–41
Agreement on the Conservation of Albatrosses and Petrels	Agreement on the Conservation of Albatrosses and Petrels, June 19, 2001, 2258 UNTS 50911. 257
AI	Artificial Intelligence
AICEP	Portuguese Agency for Investment and Foreign Trade
Antarctic Treaty	The Antarctic Treaty, June 23, 1961, 402, U.N.T.S 5778. 71
AOSIS	Alliance of Small Island States
APECS	Association of Polar Early Career Scientists
Area	The area of the seafloor and the subsoil thereof beyond the limits of national jurisdiction [see, Article 1(1)(1) of UNCLOS]
ASEAN	Association of Southeast Asian Nations

ATCM	Antarctic Treaty Consultative Meetings
Bamako Convention of the OAU	Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, January 30, 1991, 2101 UNTS 36508. 177
Barcelona Convention	Convention for the protection of the Mediterranean Sea against pollution (with annex and Protocols for the prevention of pollution of the Mediterranean Sea by dumping from ships and aircraft and Protocol concerning co-operation in combating pollution of the Mediterranean Sea by oil and other harmful substances in cases of emergency), February 16, 1976, 1102 U.N.T.S 16908. 27
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, March 22, 1989, 1673 UNTS 28911. 57
BBNJ Agreement	The adopted text of the legally binding instrument on the conservation and sustainable use of marine biological diversity of ABNJ [see, General Assembly, <i>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</i> , A/CONF.232/2023/4 (June 19, 2023), available at undocs.org/en/A/CONF.232/2023/4
BIMCO	Baltic and International Maritime Council
CBD	Convention on Biological Diversity, June 5, 1992, 1760 UNTS30619. 79
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCAMLR Convention	Convention on the conservation of Antarctic marine living resources, May 20, 1980, 1329 UNTS 22301. 47
CEP	Committee for Environmental Protection
CFC	Cobalt-rich Ferromanganese Crusts
CH ₄	Methane
CLCS	Commission on the Limits of the Continental Shelf
Climate Framework Law	Law No. 98/2021, of December 31, 2021 [Republic Diary No. 98/2021, Series 1 of 2021-12-31, pp. 5-32]
CMS	Convention on the conservation of migratory species of wild animals, June 23, 1979, 1651 UNTS 28395. 333

CO ₂	Carbon dioxide
Convention in the Field of Maritime Carriage of Nuclear Material	Convention relating to civil liability in the field of maritime carriage of nuclear material (with Final Act and official Russian and Spanish translations), December 17, 1971, 974 UNTS 14120. 255
Convention on the Liability of Operators of Nuclear Ships	Convention on the Liability of Operators of Nuclear Ships, May 25, 1962, IUCN (ID: TRE-000585)
Cooperation Agreement for the Protection of the Coasts and Waters of the North-East Atlantic against Pollution	Cooperation Agreement for the protection of the coasts and waters of the North-East Atlantic against pollution, October 17, 1990, UNTS 56805. 3
CPLP	Community of Portuguese Language Countries
CTD	Conductivity, temperature, and depth
CTS	Core Texts Series
Decree Law No. 30/2021	Decree-Law No. 30/2021, of May 7, 2021 [Republic Diary No. 30/2021, Series 1 of 2021-05-07, pp. 4-52], as amended by Law No. 10/2022, of December 1, 2022 [Republic Diary No. 10/2022, Series 1 of 2022-01-12, pp. 3-11]
Decree-Law No. 159/2019	Decree-Law No. 159/2019, of October 24, 2019 [Republic Diary No. 159/2019, Series 1 of 2019-10-24, pp. 3-24]
Decree-Law No. 166/2019	Decree-Law No. 166/2019, of October 31, 2019 [Republic Diary No. 166/2019, Series 1 of 2019-10-31, pp. 2-58]
Decree-Law No. 92/2018	Decree-Law No. 92/2018, of November 13, 2018 [Republic Diary No. 92/2018, Series 1 of 2018-11-13, pp. 5262-5270]
Decree-Law No. 96/89	Decree-Law No. 96/89, of March 28, 1989 [Republic Diary No. 96/89, Series 1 of 1989-03-28, pp. 1315-1317], as amended by Decree Law No. 17/2022, of January 18, 2022 [Republic Diary No. 17/2022, Series 1 of 2022-01-18, pp. 4-5]
Delap Commitment	Delap Commitment-Reshaping the future to take control of the fisheries
DGAM	Directorate-General for Maritime Authority
DGRM	Directorate-General for Natural Resources, Safety and Maritime Services of the Portuguese Government
DOALOS	Division for Ocean Affairs and the Law of the Sea

EEA	European Economic Area
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMEPC	Portuguese Task Group for the Extension of the Continental Shelf
Energy Charter Treaty	The Energy Charter Treaty, December 17, 1994, 2080 UNTS 46224. 95
Environmental Framework Law	Law No. 19/2014, of April 14, 2014 [Republic Diary No. 19/2014, Series 1 of 2014-04-14, pp. 2400-2404]
ESA	European Space Agency
ESG	Environmental, Social and Governance
ETH Zürich	Swiss Federal Institute of Technology in Zürich (<i>Eidgenössische Technische Hochschule Zürich</i>)
EU	European Union
EU NAVFOR	European Union Naval Force Somalia (Operation ATALANTA)
EUFASA	European Union Foreign Affairs Spouses Association
EUMS	European Union Military Staff
EUR	Euro
European Strategy for Marine and Maritime Research	Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - A European strategy for marine and maritime research: a coherent European research area framework in support of a sustainable use of oceans and seas, /* COM/2008/0534 final */
FAO	Food and Agriculture Organization of United Nations
FCT	Portuguese Foundation for Science and Technology
First United Nations Conference on the Law of the Sea	The United Nations Conference on the Law of the Sea, held in Geneva, between February 24 and April 27, 1958
Framework for a Pacific Oceanscape	Framework for a Pacific Oceanscape: a catalyst for implementation of ocean policy
GDP	Gross Domestic Product

General Assembly	General Assembly of the United Nations
GEOINT	Geospatial Intelligence
GESAMP	Group of Experts on the Scientific Aspects of Marine Environmental Protection
GoG	Gulf of Guinea
GPGP	Great Pacific Garbage Patch
GVA	Gross Value Added
Hague Regulations	Regulations Respecting the Laws and Customs of War on Land annexed to the Fourth Hague Convention of 18 October 1907, January 26, 1910, 205 C.T.S. 277
ICJ	International Court of Justice
ICJ Statute	Statute of the ICJ
ICoCA	International Code of Conduct Association
ICP	Open-ended Informal Consultative Process on Oceans and the Law of the Sea
ICRC	International Committee of the Red Cross
ICS	International Chamber of Shipping
ICSID Convention	Convention on the settlement of investment disputes between States and nationals of other States, March 18, 1965, 575 UNTS 8359. 159
IHL	International Humanitarian Law
IHRL	International Human Rights Law
IIA	International Investment Agreements
IIA with Algeria	Agreement between the Portuguese Republic and the Government of the People's Democratic Republic of Algeria on the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on September 15, 2004 [Decree No. 14/2005, of July 29, 2005, Republic Diary No. 14/2005, Series 1 of 2005-07-29, pp. 4408-4419]

IIA with Angola	Agreement between the Portuguese Republic and the Republic of Angola on the Reciprocal Promotion and Protection of Investments, signed in Luanda, on February 22, 2008 [Decree No. 40/2008, of October 10, 2008, Republic Diary No. 40/2008, Series 1 of 2008-10-10, pp. 7221-7225], as amended by Agreement between the Portuguese Republic and the Republic of Angola to Amend the Agreement on the Reciprocal Promotion and Protection of Investment, signed in Luanda, on July 16, 2021 [Decree No. 26/2021, of December 20, 2021, Republic Diary No. 26/2021, Series 1 of 2021-12-20, pp. 21-27]
IIA with Cape Verde	Agreement on the Promotion and Protection of Investments between the Portuguese Republic and the Republic of Cape Verde, signed in Lisbon, on October 26, 1990 [Decree No. 32/91, of April 26, 1991, Republic Diary No. 32/91, Series 1 of 1991-04-26, pp. 2344-2348]
IIA with China	Agreement between the Portuguese Republic and the People's Republic of China on the Encouragement and Reciprocal Protection of Investments, signed in Lisbon, on December 10, 2005 [Decree No. 17/2008, of June 26, 2008, Republic Diary No. 17/2008, Series 1 of 2008-06-26, pp. 3911-3924]
IIA with Egypt	Agreement between the Portuguese Republic and the Arab Republic of Egypt on the Mutual Promotion and Protection of Investments, signed in Cairo, on April 21, 1999 [Parliament Resolution No. 75/2000, of November 14, 2000, Republic Diary No. 75/2000, Series 1 of 2000-11-14, pp. 6416-6424]
IIA with Guinea-Bissau	Agreement between the Portuguese Republic and the Republic of Guinea Bissau on the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on June 24, 1991 [Decree No. 41/92, of October 8, 1992, Republic Diary No. 41/92, Series 1 of 1992-10-08, pp. 4694-4698]
IIA with India	Agreement between the Portuguese Republic and the Republic of India on the Mutual Promotion and Protection of Investments, signed Lisbon, on June 28, 2000 [Parliament Resolution No. 20/2002, of March 21, 2002, Republic Diary No. 20/2002, Series 1 of 2002-03-21, pp. 2698-2708]
IIA with Jordan	Agreement between the Government of the Portuguese Republic and the Government of the Hashemite Kingdom of Jordan on the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on March 17, 2009 [Decree No. 14/2012, of June 25, 2012, Republic Diary No. 14/2012, Series 1 of 2012-06-25, pp. 3187-3197]

IIA with Kuwait	Agreement between the Portuguese Republic and the Government of the State of Kuwait for the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on July 23, 2007 [Decree No. 43/2008, of October 13, 2008, Republic Diary No. 43/2008, Series 1 of 2008-10-13, pp. 7303-7315]
IIA with Libya	Agreement between the Portuguese Republic and Great Socialist People's Libyan Arab Jamahiriya on the Mutual Promotion and Protection of Investments, signed in Sirte, on June 14, 2003 [Decree No. 24/2004, of September 29, 2004, Republic Diary No. 24/2004, Series 1 of 2004-09-29, pp. 6152-6160]
IIA with Mexico	Agreement between the Portuguese Republic and the United Mexican States on the Reciprocal Promotion and Protection of Investments, signed in Mexico City, on November 11, 1999 [Decree No. 18/2000, of August 3, 2000, Republic Diary No. 18/2000, Series 1 of 2000-08-03, pp. 3713-3729]
IIA with Morocco	Agreement between the Portuguese Republic and the Kingdom of Morocco on the Reciprocal Promotion and Protection of Investments, signed in Rabat, on October 18, 1988, [Decree No. 5/90, of March 1, 1990, Republic Diary No. 5/90, Series 1 of 1990-03-01, pp. 819-824]
IIA with Mozambique	Cooperation Agreement between the Portuguese Republic and the Republic of Mozambique on the Reciprocal Promotion and Protection of Investments, signed in Maputo, on September 1, 1995 [Decree No. 13/96, of May 28, 1996, Republic Diary No. 13/96, Series 1 of 1996-05-28, pp. 1292-1295]
IIA with Peru	Agreement between the Portuguese Republic and the Republic of Peru on the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on November 22, 1994 [Decree No. 23/95, of July 15, 1995, Republic Diary No. 23/95, Series 1 of 1995-07-15, pp. 4524-4531]
IIA with Serbia	Agreement between the Portuguese Republic and the Republic of Serbia on the Mutual Promotion and Protection of Investments, signed in Lisbon, on September 16, 2009 [Decree No. 1/2010, March 8, 2010, Republic Diary No. 1/2010, Series 1 of 2010-03-08, pp. 652-662]
IIA with Singapore	Investment Protection Agreement between the European Union and its Member States, of the one part, and the Republic of Singapore, of the other part, signed in Brussels, on October 19, 2018 [Parliament Resolution No. 199/2021, of July 13, 2021, Republic Diary No. 199/2021, Series 1 of 2021-07-13, pp. 6-72]

IIA with Tunisia	Agreement between the Portuguese Republic and the Government of the Tunisian Republic on the Reciprocal Promotion and Protection of Investments, signed in Tunis, on February 28, 2002 [Decree No. 8/2004, of April 29, 2004, Republic Diary No. 8/2004, Series 1 of 2004-04-29, pp. 2657-2666]
IIA with Türkiye	Agreement between the Portuguese Republic and the Republic of Turkey on the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on February 19, 2001 [Parliament Resolution No. 22/2002, of April 4, 2002, Republic Diary No. 22/2002, Series 1 of 2002-04-04, pp. 3025-3036]
IIA with Uruguay	Agreement between the Portuguese Republic and the Republic of Uruguay on the Mutual Promotion and Protection of Investments, signed in Montevideo, on July 25, 1997 [Decree No. 65/97, of December 30, 1997, Republic Diary No. 65/97, Series 1 of 1997-12-30, pp. 6844-6850]
IIA with Chile	Agreement between the Portuguese Republic and the Republic of Chile on the Reciprocal Promotion and Protection of Investments, signed in Lisbon, on April 28, 1995 [Decree No. 64/97, of December 24, 1997, Republic Diary No. 64/97, Series 1 of 1997-12-24, pp. 6772-6778]
ILA	International Law Association
ILA Committee	The Committee of International Law and Sea Level Rise of the ILA
International Law Commission Study Group	International Law Commission Study group
ILO	International Labor Organization
IMF	International Monetary Fund
IMO	International Maritime Organization
INTERCARGO	International Association of Dry Cargo Shipowners
International Convention on Civil Liability for Oil Pollution Damage	International Convention on Civil Liability for Oil Pollution Damage, November 29, 1969, 973 UNTS 14097. 3
International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage	International Convention on the establishment of an international fund for compensation for oil pollution damage, December 18, 1971, 1110 UNTS 17146. 57

INTERPOL	International Criminal Police Organization
INTERTANKO	International Association of Independent Tanker Owners
IOC-UNESCO	Intergovernmental Oceanographic Commission of UNESCO
IOPC Fund	International Oil Pollution Compensation Fund
IPC	Open-ended Informal Consultative Process on Oceans and the Law of the Sea
IPCC	Intergovernmental Panel on Climate Change
ISA	International Seabed Authority
ISDS	Investor-state dispute settlement
ISWAN	International Seafarers' Welfare and Assistance Network
ITF	International Transport Workers' Federation
ITLOS	International Tribunal for the Law of the Sea
ITOPF	International Tanker Owners Pollution Federation Limited
IUCN	International Union for Conservation of Nature
IUU fishing	Illegal, Unreported and Unregulated fishing
Law No. 17/2014	Law No. 17/2014, of April 10, 2014 [Republic Diary No. 17/2014, Series 1 of 2014-04-10, pp. 2358-2362], as amended by Law No. 1/2021, of January 11, 2021 [Republic Diary No. 1/2021, Series 1 of 2021-01-11, pp. 3-5]
Law No. 54/2015	Law No. 54/2015, of June 22, 2015 [Republic Diary No. 54/2015, Series 1 of 2015-06-22, pp. 4296-4308]
LDC	Least Developed Countries
Madrid Protocol on Environmental Protection	Protocol on Environmental Protection to the Antarctic Treaty, October 4, 1991, 2941 UNTS 5778. 9
MAR	International Shipping Registry of Madeira
MARE	Marine and Environnemental Sciences Centre
Marine Strategy Framework Directive	Directive 2008/56/EC of the European Parliament and of the Council of June 17, 2008, establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (Text with EEA relevance), Official Journal (L 164), June 25, 2008, pp. 19-40

Maritime Working Group	Working Group on the Use of PMSC's in Maritime Security
MARPOL 73/78	Protocol of 1978 relating to the International Convention for the prevention of pollution from ships, 1973, February 17, 1978, 1340/1341 UNTS 22484. 61/3
MARPOL Convention	International Convention for the Prevention of Pollution from Ships, done at London, on November 2, 1973, <i>in</i> Final Act of the International Conference on Marine Pollution, 1973
MDG	Millennium Development Goals
MFA	Ministry of Foreign Affairs
MFN	Most-favored Nation
MGEOMETOC COE	Maritime Geospatial, Meteorological and Oceanographic Centre of Excellence
Montreux Convention	Convention regarding the Régime of Straits, July 20, 1936, 173 UNTS 213.
Montreux Document	Montreux Document on Pertinent International Legal Obligations and Good Practices for States Related to Operations of PMSC's during Armed Conflict
Montreux Reference Document	Reference Document – Elements for a Maritime Interpretation of the Montreux Document
MPA	Marine Protected Areas
MSC	Maritime Safety Committee of the IMO
MSR	Marine Scientific Search
NATO	North Atlantic Treaty Organization
New York Convention	Convention on the Recognition and Enforcement of Foreign Arbitral Awards, June 10, 1958, 330 UNTS 4739. 3
NGO	Non-governmental organization
NMA	National Maritime Authority
OAU	Organization of African Unity
OAU Convention	OAU Convention for the elimination of mercenarism in Africa, July 3, 1977, 1490 UNTS 25573. 89
OECD	Organization for Economic Co-operation and Development
OLA	Office of Legal Affairs of the United Nations

OPEC	Organization of the Petroleum Exporting Countries
OSCE	Organization for Security and Co-operation in Europe
OSPAR Convention	Convention for the protection of the marine environment of the North-East Atlantic, September 22, 1992, 2354 UNTS 42279. 67
p.	Page
para.	Paragraph
Paris Convention on Third Party Liability in the Field of Nuclear Energy	Convention on third party liability in the field of nuclear energy, July 29, 1960, 956 UNTS 13706. 251
Paris MoU	1982 Paris Memorandum of Understanding on Port State Control, adopted in Paris, on July 1, 1982
PCA	Permanent Court of Arbitration
PCASPs	Privately Contracted Armed Security Personnel
PEI International	Polar Educators International
PIF	Pacific Island Forum Leaders
PMN	Polymetallic Nodules
PMS	Marine Polymetallic Sulphides
PMSCs	Private Maritime Security Companies
Portuguese Civil Code	Decree-Law No. 201/98, of July 10, 1998 [Government Diary No. 274/1966, Series 1 of 1966-11-25, pp. 1883-2086], as amended by Law No. 8/2022, of January 10, 2022 [Republic Diary No. 8/2022, Series 1 of 2022-01-10, pp. 6-15]
Portuguese Penal Code	Decree Law No. 48/95, of March 15, 1995 [Republic Diary No. 48/95, Series 1 of 1995-03-15, pp. 1350-1416], as amended by Law No. 94/2021, of December 21, 2021 [Republic Diary No. 94/2021, Series 1 of 2021-12-21, pp. 3-49]
pp.	Pages
PROPOLAR	Portuguese Polar Program
PSP	Public Security Police
PSSAs	Particularly Sensitive Sea Areas
REY	Rare Earth Elements plus yttrium

RFMO/As	Regional Fisheries Management Organizations or Arrangements
SCAR	Scientific Committee on Antarctic Research
SDGs	United Nations Sustainable Development Goals
Second United Nations Conference on the Law of the Sea	The Second United Nations Conference on the Law of the Sea, held in Geneva, between March 17 and April 26, 1960
Security Council	United Nations Security Council
SIDS	Small Island Developing States
SNEM	National System of Vessels and Maritime (<i>Sistema Nacional de Embarcações e Marítimos</i>), established by Decree Law No. 43/2018, of June 18, 2018 [Republic Diary No. 43/2018, Series 1 of 2018-06-18, pp. 2531-2533]
SOLAS Convention	International Convention for the Safety of Life at Sea, 1974, November 1, 1974, 1184 UNTS 18961. 2
Stockholm Declaration	Declaration on the Human Environment, adopted by the United Nations Conference on the Human Environment, Stockholm, June 16, 1972
SUA Convention	Convention for the suppression of unlawful acts against the safety of maritime navigation, March 10, 1988, 1678 UNTS 29004. 201.
Tanker Owners' Voluntary Agreement Concerning Liability for Oil Pollution	Tanker Owners Voluntary Agreement Concerning Liability for Oil Pollution, signed on January 7, 1969
Taputapuata Declaration	Taputapuata Declaration on Climate Change, Polynesian Leaders Group, July 16, 2015
Third United Nations Conference on the Law of the Sea	The Third United Nations Conference on the Law of the Sea, held between 1973 and 1982
Treaty of Paria	Treaty between Great Britain and Northern Island and Venezuela relating to the Submarine Areas of the Gulf of Paria, signed in Caracas, on February 26, 1942
TRIS Agreement	Agreement on Trade-Related Aspects of Intellectual Property Rights, signed in Marrakesh, on April 15, 1994
TU Delf	Delft University of Technology (<i>Technische Universiteit Delft</i>)

UNCCORS	United Nations Convention on Conditions for Registration of Ships, February 7, 1986, adopted at Adopted at the 150th meeting, November 21, 1986, <i>in</i> Report of the Committee on Shipping on its twelfth session held at the Palais des Nations, Geneva, from November 10 to 21, 1986 [TD/B/C.4/(XII)/Misc.3, January 12, 1987, p. 74.
UNCITRAL	The United Nations Commission on International Trade Law
UNCITRAL Arbitration Rules	Arbitration Rules of UNCITRAL
UNCLOS or Convention	United Nations Convention on the Law of the Sea, December 10, 1982, 1833 UNTS 31363. 3
UNDP	United Nations Development Programme
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
United Nations Charter	Charter of the United Nations, June 26, 1945
UNODC	United Nations Office on Drugs and Crime
UNTS	United Nations Treaty Series
USD	United States Dollar
USV	Unmanned Surface Vessel
UV radiation	Ultraviolet Radiation
VCLT	Vienna Convention on the Law of Treaties, May 23, 1969, 1155 UNTS 18232. 331
Vienna Convention on Civil Liability for Nuclear Damage	Vienna Convention on civil liability for nuclear damage, May 21, 1963, 1063 UNTS 16197. 265
Waigani Convention	Convention to ban the importation into Forum island countries of hazardous and radioactive wastes and to control the transboundary movement and management of hazardous wastes within the South Pacific Region (Waigani Convention), September 16, 1995, 2161 UNTS 48102. 91

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INTRODUCTORY NOTE |

João Gomes Cravinho, Portuguese Minister of Foreign Affairs

The ocean plays a central role in Portugal's past, present and future, and this is naturally present and visible in multiple dimensions of our country's foreign policy: in our diplomacy, our national security, our economy and in our approach to environmental sustainability. These domains are all interconnected, and in each of them the government seeks to establish public policies with clear and pragmatic guidelines and objectives.

As Minister of Foreign Affairs, I am keenly aware of decades of consolidated knowledge and work carried out by the MFA, by its officials, diplomats or specialists, who have developed possibly peerless work in promoting the ocean as a topic on the international political agenda and in multilateral *fora*. This has been no easy task, as the Ocean competes for attention and energy with so many other pressing themes on the international agenda, but we can certainly be proud of a measure of success in this mission.

Our Ocean is a resource and responsibility shared by dozens of countries around the world, and the MFA has sought patiently but persistently to facilitate engagement and convergence between different stakeholders, Portuguese and international, in the dissemination of projects, best practices and lessons learned, in order to share knowledge effectively. This cooperation, which is an intrinsic part of our diplomatic action, is carried out within international and regional organizations of which Portugal is a member and requires joint work, mobilization, and political will. We believe that Portugal is recognized by its peers as an *honest broker* that seeks consensus and solutions that are sustainable and durable.

States, the scientific community, companies, and populations can and must work together to take advantage of the potential and resources of the Ocean, to face global challenges such as climate change and pollution, for example, but also to establish priorities for action. There is an urgency about this today that we should not and cannot ignore.

This statement is equally valid in the domain of security. The Ocean is a critical element in national and global security—as a country with a significant coastline, with two archipelagos in the Atlantic and one of the largest EEZ in the world, the security of our maritime area of responsibility is crucial. Safe navigability to guarantee trade, scientific research or leisure in this vast maritime territory requires us to be able to reduce our collective vulnerability to illicit activities such as piracy or other threats. The protection of national interests by our Armed Forces naturally extends to the protection of the Ocean, but the individual action of the Portuguese Armed Forces is, on its own, insufficient. Increasingly, it is necessary to cooperate with other countries in detecting and responding to possible common threats.

The relevance of the Ocean for our economic future goes back many centuries in Portuguese history, though today we have new and different prospects and opportunities. Whereas in previous times our focus was on fishing or maritime transport, we now look to the immense potential of the sustainable blue economy, including for example the pharmaceutical properties of seaweed, the sustainable provision of food through marine aquaculture or the new energy prospects from offshore wind or—in due time—the harnessing of waves and currents.

The environmental sustainability of the Ocean has received greater social, media and political attention in recent years, and part of the credit for this must go to the regular appeals of the Secretary General of the United Nations, António Guterres. The Ocean is a critical and yet underrated part of our global ecosystem and ensuring that it remains healthy is essential for the survival of many species, which indeed includes humans. Climate change, pollution and overfishing are real and very present dangers to the health of the Ocean, and Portugal is committed to exercising a foreign policy that promotes global, sustainable, and lasting decisions on the use and management of ocean resources.

Portugal and the Constitution for the Oceans: The United Nations Convention on the Law of the Sea 40 years After aims higher than simply to contribute to the celebration of the fortieth anniversary of the adoption of UNCLOS. It seeks to provide a landmark on the state of the art of academic, scientific, and political knowledge on the Ocean. The comprehensive character of the book is well reflected in the diverse chapters dedicated to many of the aspects that I have mentioned, and I sincerely congratulate the organizers of this collective work,

Mateus Kowalski and João Gil Antunes, for having brought together a remarkable cohort of authors, and for the determination, focus and professionalism with which they have accomplished this while simultaneously fulfilling their daily work in the MFA.

It is an honour and privilege to share these words as Minister of Foreign Affairs and I hope that this book will become a useful instrument for anyone wishing to deepen their understanding of the Ocean today or of the role of Portugal in the multilateral sphere. Portugal's engagement with this theme is well portrayed and will remain a fixture of our foreign policy.

FOREWORD |

António Guterres, Secretary General of the United Nations

The ocean is a critical part of life for every person on the planet. From island nations to land-locked countries, from advanced economies to developing States, the ocean is a vital and indispensable source of nourishment, economic opportunity and interconnectivity. Its resources provide livelihoods to millions, its waters are a highway for global commerce, and its depths serve as a precious repository for biodiversity, from the smallest plankton to the largest mammals. It provides us with immeasurable shared resources, including much of the air we breathe.

Through my work as Secretary-General of the United Nations, I have come to recognize the ocean as a common thread connecting not only every person on the planet, but also the great environmental crises facing humanity today.

Climate change is one example. When we talk about the challenges of climate change, we often consider its impacts on air and land. But greenhouse gas emissions affect the ocean in a profound way, with serious repercussions for humanity. Biodiversity loss is another clear example. The vast majority of life, by mass, resides in the ocean. And when we consider how to combat the scourge of pollution, we must acknowledge that much of the waste we generate ends up in the ocean, including millions of tons of plastic every year. While the ocean is a nexus for these global crises, it is also the source of remarkable inspiration for collective global action and solidarity.

Over 70% of the Earth's surface is ocean, connecting all continents. It is therefore in the interests of humanity to join forces, in a spirit of shared responsibility, to safeguard this gift for the future.

The Member States of the United Nations have long recognized the critical importance of the ocean as a shared resource for humanity that requires regulation and protection. Forty years ago, after years of intense and complex negotiations, States adopted UNCLOS. Commonly known as the ocean's Constitution, the Convention represents an extraordinary achievement, unparalleled in its scope.

The Convention is the outcome of a vision for the governance of our ocean that reflects the importance of its peaceful uses and the need for legal certainty around ocean-based activities, grounded in the principles of sustainable and equity of use.

Today, the Convention continues to provide the foundation for regulating ocean activities around the globe, and a roadmap for all countries seeking to manage maritime spaces and resources. As we seek to address urgent and emerging challenges, it also continues to act as the indispensable guide for all ocean-related action at the global, regional and national levels.

The United Nations, as the only truly global organization with the ability to address today's challenges in a holistic way, continues to act on multiple fronts with respect to the ocean. As Secretary-General, I see entities across the United Nations system acting as one across a wide range of areas—from environmental protection, food and agriculture, to transportation, science, and development.

Action to protect the ocean is critical to achieving the 2030 Agenda for Sustainable Development and the Sustainable Development Goals. Reaching these Goals—in particular, Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development—will be essential to ensure that the ocean remains the healthy and resilient lifeblood of our planet.

Governments themselves must also take action. For example, it was especially inspiring to see countries gather in Lisbon in 2022 at the 2022 United Nations Ocean Conference and make hundreds of new voluntary commitments and pledges to protect the ocean.

Step by step, year after year, we are making progress, and creating fresh hope that humanity is finally moving away from destructive economic policies and environmental practices and towards a sustainable future for all. The United Nations stands ready to assist in that collective effort, as we conserve and protect our ocean and its gifts for future generations.

INTRODUCTION |

Mateus Kowalski and João Gil Antunes

The ocean covers more than 70% of the surface of our planet and accounts for 95% of the biosphere. It is the *last frontier* of our time, and like every other such frontier in human history, it holds the mysteries of the unknown and the hope of great benefits and valuable resources. As referred by the great Portuguese poet, Fernando Pessoa: “God gave peril and abyss to the sea; yet in it he mirrored heaven.”¹ UNCLOS was adopted forty years ago, in Montego Bay, on December 10, 1982—the day on which Portugal also signed it—with the aim of regulating this *last frontier*.

UNCLOS is a historic achievement as it is the most comprehensive legal framework for ocean governance. This book intends to be a contribution to the celebration of its fortieth anniversary. UNCLOS’ relevance, broad scope, and large number of parties have earned it the title of “Constitution for the Ocean,” as Tommy Koh, President of the Third United Nations Conference on the Law of the Sea, referred to it at the closing session of the Montego Bay Conference.² In his speech, Tommy Koh summarized well the reasons for the importance of adopting UNCLOS. *First*, it promotes the maintenance of international peace and security by providing a system of rules and principles by which conflicting claims relating to maritime boundaries must be settled. *Second*, it facilitates freedom of navigation. *Third*, it enhances the use and conservation of the marine living resources. *Fourth*, it contributes to the protection and preservation of the marine environment from pollution. *Fifth*, it regulates marine scientific research by striking a balance between the interests of coastal States and research States. *Sixth*, it sets out a mandatory system for dispute settlement. *Seventh*, it qualifies the resources of the deep seabed as a common heritage of humankind. *Finally*, it ensures justice in traditional areas of dispute, including benefit sharing.

¹ Free translation of “Deus ao mar o perigo e o abysmo deu, Mas nelle é que espelhou o céu” (Fernando Pessoa, *Mensagem*, 44 (Lisboa: Macau: Imprensa Nacional de Macau, 1959), 68.)

² Tommy Koh, “‘A Constitution for the Ocean’ in United Nations Convention on the Law of the Sea with Index and Final Act of the Third United Nations Conference on the Law of the Sea” (United Nations, 1983), https://www.un.org/depts/los/convention_agreements/texts/koh_english.pdf.

The later adoption of the 1995 United Nations Fish Stocks Agreement further strengthened the UNCLOS system. In addition, the successful conclusion of the BBNJ Agreement, on March 4, 2023, represents an important further step in the right direction for ocean governance. Even if the outcome represents a carefully crafted balance between sometimes conflicting perspectives, interests, and legitimate expectations, the fact that States have come together and presented an agreement on such an important issue is a sign of hope, especially at a time of de-legalization of international law.

However, calling UNCLOS the *constitution for the ocean* is not without risk. From a purely legal perspective, this is a bold statement that needs to be discussed further in the context of global constitutionalism, a theoretical approach that is rooted in a universalist view of international social relations in which, in the words of Tomuschat, international law is a “[...] comprehensive blueprint for social life.”³ This approach proclaims a positive correlation between globalization and democracy, with international law seen as an instrument against autocracy and for the promotion of democratic systems of governance.⁴ In this line of thought, global governance may even be the best way to organize globalization and manage the multitude of its complex effects. In its 1995 report, the Commission on Global Governance proposed strengthening global governance institutions—particularly the United Nations—but without compromising the principles of sovereignty and self-determination.⁵

The narrative of global governance finds in global constitutionalism an attractive legal discourse that lends it sustainability and structure. At the same time, global constitutionalism—drawing from an ideal type of constitutional order, that of Western liberal democracies—finds in global governance the ideal political project it needs to function. Therefore, global constitutionalism is first and foremost a legal response to globalization, especially after the Cold War. It was also essential to move beyond a legal discourse focused mainly on the security of States and to give impetus to a new, more ambitious world order.

³ Christian Tomuschat, “International Law: Ensuring the Survival of Mankind on the Eve of a New Century General Course on Public International Law,” in *Collected Courses of the Hague Academy of International Law*, vol. 281 (IV) (Koninklijke Brill NV, 1999), 42.

⁴ Thomas M. Franck, “The Emerging Right to Democratic Governance,” *American Journal of International Law* 86, No. 1 (January 1992): 46-91.

⁵ Commission on Global Governance, ed., *Our Global Neighborhood: The Report of the Commission on Global Governance* (Oxford: Oxford University Press, 1995).

A world order based, in Falk's words, "[...] on such values as peace, societal well-being, democratization, and human and ecological solidarity."⁶ Within this constitutional purpose, international law would have the function of limiting power at the global level, regulating political action and protecting the rights of States and individuals. That is, global constitutionalism purports to provide a normative compensation for the insufficiencies of national constitutionalism and its erosion in the face of globalization.⁷ However, the search for a *global constitution* in international law—for instance, the Charter of the United Nations—can only be the result of a purely formalistic exercise with no substantive consequences.⁸

The term *constitution for the ocean* must therefore be understood in a metaphorical sense, as a linguistic device used to enhance the legal relevance of UNCLOS. However, this does not change Tommy Koh's ambition that UNCLOS should represent a comprehensive normative and institutional system for ocean governance. Indeed, it achieves precisely this fundamental goal. It is, therefore, a forgivable legal inconsistency in order to pay tribute to the work of all those who contributed to the codification and development of the law of the sea, such as Arvid Pardo, Hamilton Amerasinghe, or Tommy Koh himself. Of course, this does not change the legal nature of UNCLOS as an international treaty whose normative goal was, at least in part, "[...] to settle, in a spirit of mutual understanding and cooperation, all issues relating to the law of the sea."⁹

The context and way the ocean is perceived today, however, is not the same as it was in 1982. There are several reasons for this, such as the rapid development of science related to living and other underwater resources that continues to shed light on the marvels of the still vastly unexplored oceans; or the new opportunities for sustainable use of resources that can make a difference in the social and economic development that new technologies are uncovering.¹⁰

⁶ Richard A. Falk, "The Pathways of Global Constitutionalism," in *The Constitutional Foundations of World Peace*, ed. Richard A. Falk, Robert C. Johansen, and Samuel S. Kim (State University of New York Press, 1993), 13-38.

⁷ Anne Peters, "The Merits of Global Constitutionalism," *Indiana Journal of Global Legal Studies* 16, No. 2 (2009): 397-411.

⁸ Mateus Kowalski, "A Carta das Nações Unidas como 'Constituição' da comunidade internacional," *Revista NegóciosEstrangeiros* 15 (December 2009): 31-58.

⁹ See, Preamble of UNCLOS.

¹⁰ It is not without reason, therefore, that the Second Ocean Conference—held in Lisbon in 2022 under the umbrella of SDG 14, *Life Under Water*—sought to identify science-based innovative solutions for sustainable management of the ocean, including technologies and new ways to use marine resources.

At the same time, however, the ocean is facing unprecedented threats as a result of human activities. This, in turn, has a major impact on human life and nature as a whole, especially in what relates to coastal and small island States. Therefore, striking the right balance between ocean exploration and preservation is difficult. The benefits that science and technology can derive from the ocean come at a price. United Nations Secretary-General, António Guterres, reminded us of this duality when he noted that “[...] many of the benefits that the global ocean provides to humankind are being undermined by our own actions.”¹¹ This is why the concept of *sustainability* is key to this discussion and to balanced policy solutions, even if it proves to be an elusive concept. At a minimum, it should mean that benefits entail responsibilities, that development should be understood in an intergenerational horizon, that revenues from exploration of ABNJ should imply solidarity and redistribution, or that exploration and preservation should be based on both a human and an ecocentric perspectives.

At this juncture, it is legitimate to question whether UNCLOS, including the obligations it prescribes and the institutions it creates, is sufficient today to govern the ocean in the face of so many complex challenges. Whether it provides an adequate framework to promote development while ensuring the preservation of its resources; to seek peace and security while guaranteeing certain freedoms; to protect sovereignty and jurisdiction rights while enabling solidarity and cooperation. UNCLOS provides comprehensive answers and has been able to adapt and meet new challenges-though, of course, not without shortcomings. This is all the more true now that the BBNJ Agreement is on its way to be included in the UNCLOS system. Sometimes, however, the issue is not so much what the law is, but more who interprets and applies it, how the hermeneutic exercises are carried out, and for whom. The answer to this question, then, lies in a delicate balance that is ultimately determined by the political options available to States to which the scientific community, NGOs, multinational companies, consumers can contribute greatly.

In this context, an integrated, multidisciplinary, and multivoiced approach to ocean governance is key. This idea is central to what this book purports to do:

¹¹ Secretary-General of the United Nations, “Stressing Oceans Sustain Livelihoods of Over 3 Billion People, Secretary-General Says Humankind Must End War on Nature, in Observance Message,” <https://press.un.org/>, June 1, 2021, <https://press.un.org/en/2021/sgsm20754.doc.htm>.

to bring together in one place a variety of perspectives on current issues related to the ocean. It is a collective reflection on different areas related to the ocean that are of particular interest to Portugal, including governance, law, environment, economy, security, and science. It gathers contributions from several authors with different but complementary backgrounds, allowing a multidisciplinary approach to a complex object of study. This book is divided into five thematic parts, each of them dealing with a particular area related to the ocean, inviting readers to ask different questions and deal with different realities and problems. However, they do not intend to do this in an exhaustive manner. The challenge for the authors—especially given the word limit they were given—was to prepare their topics in such a way that anyone interested in knowing more about their subject-matters can easily find their way around and have access to a complete and accurate landscape.

With this in mind, this collective work is organized as follows: The first part gives readers a historical and institutional overview of the law of the sea, centered, of course, on UNCLOS. The spirit underlying the content and approaches is rooted in the idea that to understand the part, one must be able to grasp the whole. Accordingly, the three chapters that make up Part I provide fundamental explanations of the law of the sea, without which no one can thoroughly understand and address the challenges that the ocean currently faces and will face in the future.

In *The Codification and Progressive Development of the Law of the Sea*, Fernando Loureiro Bastos gives us a historical overview of the negotiations and adoption of UNCLOS. The process of codification of the law of the sea is explained in detail, with the first part focusing on the First, Second, and Third United Nations Conferences on the Law of the Sea. The importance of such a historical overview is, of course, that it offers legal interpreters, including international courts and tribunals, valuable insights into the genesis of UNCLOS and explains how it eventually became the “Constitution of the Oceans.”¹² After all, historical context is an indispensable feature of any hermeneutic exercise. The chapter goes further and discusses subsequent developments in the law of the sea, including the 1994 Agreement relating to the Implementation of Part XI of UNCLOS and the United Nations 1995 Fish Stocks Agreement.

¹² Koh, “A Constitution for the Ocean’ in United Nations Convention on the Law of the Sea with Index and Final Act of the Third United Nations Conference on the Law of the Sea.”

It ends with a comprehensive overview of the many multilateral instruments—both binding and non-binding—that make up the current architecture of the law of the sea.

In *The Contributions of the ICJ and ITLOS to the Governance of the Ocean*, Vladyslav Lanovoy navigates with extreme rigor and expertise through the extensive and choppy waters of jurisprudence on the governance of the oceans. He does so through the lens of two of the most important international tribunals—the ICJ and ITLOS. This careful study is unique in that it is based on a detailed understanding of the intricacies and limitations of the two international courts. The chapter strongly emphasizes that the contributions related to ocean governance have been significant, particularly in providing clear and valuable explanations of the issues of delimitation of maritime boundaries and the use of resources in maritime spaces in areas within and beyond national jurisdiction.

In *Biodiversity Beyond National Jurisdiction—40 Years Later, the BBNJ Agreement*, Maria Inês Gameiro looks at the much-anticipated BBNJ Agreement—the final piece of the puzzle in the architecture of UNCLOS. Readers are offered a behind-the-scenes look at the negotiating corridors and the environment in which the text took its shape. It is perhaps one of the first chapters written on the BBNJ Agreement after more than a decade of protracted negotiations and right after more than one hundred and ninety delegations agreed not to reopen the text of the BBNJ Agreement. The chapter focuses on identifying the key outcomes of the BBNJ Agreement and highlights the specific innovations and legal solutions that delegations found to address each of these issues.

In *The Rule of Law at Sea: The South China Sea and the Black Sea*, Vasco Becker-Weinberg takes off to and adopts a more pragmatic approach in the examination of two highly sensitive cases in which the approaches to resolving disputes involving law of the sea norms could not be more different. In particular, readers will have access to in-depth analyses of the South China Sea Arbitration—in which the Philippines and China faced off over disputes in the South China Sea—and the more recent matter connected with Russia's invasion of Ukraine of 2022 of the management of the straits of the Black Sea by Türkiye under the Montreux Convention. The chapter is an invaluable resource for anyone seeking guidance based on real-life experience on the dos and don'ts in matters of ocean governance. This is all the more true because it deals in part with a legal issue rarely addressed by scholars—the applicable legal regime for international straits.

The second part has a mixed character, but it is deeply rooted in the ideals of sustainable and balanced approaches to ocean governance. The narratives of the three chapters that make up this part all revolve around the undeniable assumption that the ocean plays a fundamental role in the health of our planet and the quality of our lives. Accordingly, all efforts and mechanisms aimed at solving pressing challenges and protecting our ocean—institutional, individual, or otherwise—are worthy of support. Thus, the need for institutional and international cooperation in achieving and the existence of international mechanisms to compensate for damage arising from international wrongful acts—often related to catastrophic events, is critical to achieving the targets of SDG 14, *Life below water*.¹³ Our lives depend on it.

In *Achieving Sustainable Development Goal 14: The Contributions of the United Nations Office of Legal Affairs*, Miguel de Serpa Soares in comparison to the chapters of Part I moves into a less legal but more political and institutional realm. In particular, against the backdrop of SDG 14—thoroughly explained and placed in its political context—the chapter explains the role of the United Nations, particularly that of OLA in areas related to ocean governance, namely (i) marine biological diversity of ABNJ; (ii) fisheries; (iii) informed science-based policy-making; and (iv) capacity building. The merit of this chapter is to show that the United Nations never gives up leading the international community in addressing and overcoming global challenges, including those related to the ocean and its governance. The merit is to show that no international institution has the capacity and the willingness of the United Nations, without which international cooperation and global change are seriously threatened.

In *Cleaning Legal Plastic: The case of The Ocean Cleanup*, João Ribeiro-Bidaoui and Efstahios-Effraim Giannidakis describe the odyssey of The Ocean Cleanup.¹⁴ There are not many words capable of reflecting the uniqueness and exceptionality of what this non-profit organization set out to achieve in our ocean and rivers—the elimination of 90% of plastic in the ocean through a mix of science-based strategies and tools and an unbreakable and tenacious will to make a good

¹³ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development,” <https://sdgs.un.org>, accessed December 12, 2022, <https://sdgs.un.org/goals/goal14>.

¹⁴ “The Ocean Cleanup,” accessed April 4, 2022, <https://theoceancleanup.com/>.

change in our world. In this chapter, readers are granted a privileged access to The Ocean Cleanup and receives a first-hand tour guide through its activities, current status and goals. More than the details of the technological hurdles currently faced by The Ocean Cleanup, this chapter is a relentless testament to the magnitude and importance of the contributions that civil society—nonprofit or otherwise—can make in addressing global challenges, provided the right values guide their actions.

In *Responsibility of Private Entities in International Environment Law*, Manuel de Almeida Ribeiro closes the circle by returning to the wonders of international law. In doing so, readers have access to an indispensable topic that should not be missing from any work dealing with international governance, whether of the ocean or other areas. The chapter deals with the international mechanisms for granting compensation in the case of an international wrongful act and resulting damage. This is done through the legal regime of a specific area of international law—namely, international environmental law—in relation to private entities responsible for environmental damage, dealing in particular with the problem of large-scale disasters. The importance of navigating these waters quickly and safely cannot be overstated. This is a prerequisite for, on the one hand, committed domestic authorities to design thorough and effective public policies and, on the other hand, private actors to develop their activities with predictability and confidence. Only in this way can communities also benefit from global trade while trusting that there is an international framework that provides the necessary compensation for any damage that may occur, and sound national policies that compensate for those aspects that are not adequately regulated.

Part III of this book deals equally with new and old issues of the law of the sea. In putting together this part, care has always been taken to ensure that each of its chapters provides important tools for addressing future challenges. Accordingly, even those issues that could easily be described as classics of law of the sea are ambitiously approached in order to provide a fresh analysis based on new developments in jurisprudence and academic literature. Perhaps more than in any other part of this book, the authors refer to principles and concepts of international law—statehood, sovereignty, jurisdiction, territoriality—in their search for answers to contemporary problems. It is above all a part in which yesterday's understandings and solutions serve as firm references for tomorrow's needs.

In *The Status of Rocks and Islands and its Implications: An overview of one of the most debated topics in the law of the sea forty years after the adoption of the Convention*, Sérgio Carvalho writes about a traditional topic of the law of the sea, namely the status of islands and rocks under international law. This is a topic that is revisited from time to time in books, book chapters, and journal articles. This is understandable, given the importance of this issue in defining the maritime boundaries of States and the territories over which they exercise sovereignty or jurisdiction. Nevertheless, the relevance of the chapter is undeniable, for it not only provides a rigorous overview of the legal regime governing the status of islands and rocks, but also does so against the backdrop of important developments arising from the *South China Sea Arbitration*.

In *The Extension of the Continental Shelf and its Implication for the Global Seabed Jurisdiction*, Aldino de Campos provides his expertise and experience on topical and interrelated issues of the law of the sea—the concept of continental shelf and the possibility of States to extend it to three hundred and fifty nautical miles. In this regard, UNCLOS adopted a new approach. Since its entry into force, States that want their outer limits to be recognized by the international community must ensure that they cooperate with the CLCS, as the latter has the authority to make recommendations to which States' proposals for such outer limits must conform for this purpose. Since that moment, however, much water has passed under the bridge. Therefore, understanding the evolution of the concept of continental shelf under international law and the lessons-learned by the CLCS, as well as the challenges it has faced, is definitely a valuable contribution of this chapter for anyone interested in this technical legal issue or in the pressing geopolitical aspects of the delimitation and extension of continental shelves.

In *Sea Level Rise in relation to International Law: the work of the International Law Commission regarding law of the sea issues*, Patrícia Galvão Teles and Daniela Martins Pereira address perhaps one of the most challenging issues related to the law of the sea—sea level rise. One does not have to be an expert in public international law or international relations to quickly recognize that sea level rise is a much-heralded phenomenon with potentially catastrophic consequences, including the de facto disappearance of low-lying coastal areas and islands. As of 2018, the International Law Commission has placed the topic *Sea-level rise in relation to international law* on its agenda, within which

Patrícia Galvão Teles, together with Juan José Ruda Santolaria, drafted the Second issue paper (2022). This chapter is therefore part of an effort to look for solutions in the many norms of international law—among other things, to ensure clarity and predictability in the legal consequences of sea-level rise—and, where those norms prove inadequate or insufficient, to advise the international community to find the right way forward.

Part IV is about the indelible interplay between the ocean and economic development. The ocean is rich in resources, but resources are finite. This raises the legitimate question of how their exploration and exploitation should be done. This part does not claim to be exhaustive and encompass each and every economic activity that takes place in the ocean. It focuses largely on the issue of the exploration for and exploitation of mineral resources in the ocean. This is not because marine mineral resources are more important than other resources, but because their exploration and exploitation has recently raised complex issues and attracted global attention and concern. The design of public policies in this area is a delicate task in which legal, political and societal considerations must be carefully and thoroughly taken into account. Readers—especially those seeking to explore mineral resources in the Portuguese sea—probably expect this part to guide them through the Portuguese legal intricacies. To some extent, it does so on the assumption that economic policy and development must be accompanied by a multidimensional approach in which environmental and social indicators are equally relevant alongside other macroeconomic indicators such as the GDP.¹⁵

In *A Semiotics of Blue Economy*, Ricardo Serrão Santos takes a step back and discusses the meaning of a trendy concept—the *Blue Economy*. A careful look at the programs of today's conferences and seminars' programs reveals that participants are often invited to discuss ocean governance from a blue economy perspective. However, it is not always clear what this concept actually means. In this context, it is dangerous and wrong from a methodological point of view to neglect this question and assume that everyone adopts a criterial approach to defining the term. This chapter attempts to fill this gap and show that the meaning of Blue Economy is open to interpretation, filled with substantive and political considerations—and can therefore be controversial.

¹⁵ Thomas Piketty, *A Brief History of Equality*, trans. Steven Rendall (Cambridge, Massachusetts: The Belknap Press of Harvard University Press, 2022), 21–26.

In *Marine Mineral Resources*, Pedro Madureira and Luísa Pinto Ribeiro provide an overview of the current state of marine mineral exploration and exploitation and the importance of these activities to global supply chains and the challenges associated with the green transition of the global economy. In particular, this chapter attempts to explain what the concept of marine mineral resources encompasses and means from a legal and geological perspective, while acknowledging that much remains to be discovered. It also attempts to place marine mineral exploration and exploitation in the context of the SDGs and to map marine minerals in the Portuguese Sea.

In *Exploring Mineral Resources in the Sea: the relevance of the Portuguese network of international investment agreements*, there is an ambition to raise awareness of an often-neglected tool when it comes to shaping public policy. This chapter focuses on the relationship between IIAs and the exploration for and exploitation of marine mineral resources. Under IIAs, foreign investors are granted several substantive international rights in addition to the right to bring a legal action against sovereign States when they have committed an international wrongful act. Academic literature has shown that many states have entered into IIAs without realizing the legal, political, and societal implications. Be that as it may, there are more than 2.000 IIAs in force today. They have changed the landscape of international law and are legal instruments that public authorities and foreign investors must consider when designing public policies or deciding whether to invest. This chapter examines the scope of the IIAs to which Portugal is a party in the context of marine mineral exploration and exploitation.

In *Protection of the Ocean and the Development of Deep-sea Mining Regulation for Maritime Areas under Portuguese Sovereignty or Jurisdiction*, Inês Crispim poses the question of whether the exploitation of marine mineral resources in the Portuguese sea is legal given the current international and domestic legal frameworks in force. Against this backdrop, readers have the opportunity to navigate complex legal regimes and weigh the pros and cons of States allowing these activities in areas over which they exercise sovereign powers or jurisdiction. Above all, it is a chapter that makes clear that States, for-profit corporations, and civil society in general may have been sending conflicting signs. On the one hand, a strong commitment to protecting the ocean and its biodiversity; on the other, a willingness to allow and conduct deep-sea mining, with all the dangers

such activities pose to achieving those goals. The value of this chapter lies in its contributions to a more informed and transparent public debate.

Part V addresses the security dimension of ocean governance. In postwar Europe and until the Russian invasion of Europe in 2022, public spending on defense capabilities and infrastructure has been viewed with suspicion. Undoubtedly, public budgets and the discussions leading to their approval reflect certain political, economic, and social priorities. However, the way international law is structured grants sovereign States certain prerogatives and rights, including sovereignty or jurisdiction over a given territory. These prerogatives come with difficult responsibilities. One of these is ensuring security over vast maritime areas, without which all other dimensions of ocean governance can easily fail. The set of contributions that make up this part discuss various issues related to security and the exercise of jurisdiction.

In *Ensuring Security over Vast Maritime Zones*, Henrique Gouveia e Melo discusses the challenges Portugal currently faces in light of the large maritime area over which it exercises sovereignty and has jurisdiction and the geostrategic importance of the North Atlantic not only for Portugal but for the entire world. The chapter also addresses the need for today's navies to be versatile and multidimensional. Overall, it is an authoritative overview of the reality in which the Portuguese Navy operates and the role its Commander-in-Chief sees in ensuring that Portugal is able to provide security in its vast maritime area and meet the expectations of its allies' in the various international frameworks, including those of the EU and NATO. A useful read for anyone paying attention to the rapid global geostrategic changes currently underway, forced primarily by the Russian invasion of Ukraine in 2022. One way or another, the North Atlantic and the Portuguese Navy will have a role to play in the yet unknown global balances. This is a realistic and serene overview of what that role might be.

In *The Use of Private Military and Security Companies in a Maritime Security Context*, Ana Costa Pereira addresses a phenomenon that readers may consider a novelty. Reading this chapter, it becomes clear that the outsourcing of security functions by States has firm historical roots, for example, in the mechanisms of privateering and reprisals before the use of force at sea became the monopoly of State actors in the twentieth century. The analysis continues to the present day, with mercenarism being the focus of the chapter. Among other things, it

discusses how international law has dealt with this phenomenon in recent decades. The legal-historical approach ends, of course, with the moment when PMSCs became part of the current military and security landscape, particularly in the context of piracy and armed robbery against ships. Accordingly, the chapter addresses the essential question of whether the use of PMSCs conforms to relevant principles and norms of international law. This chapter offers an overview not only of UNCLOS and the relevant IMO instruments, but also of the Montreux Document, the Montreux Reference Document, and Portuguese domestic law. This contribution is a must read for anyone who wants to understand not only the historical context of the use of PMSCs, but also the late efforts of the international community to clarify their status before international law to show that they do not operate in a legal vacuum.

In *Portugal as Flag State: Flag of Convenience or Convenient Flag? A reflection on flag state duties under UNCLOS and their implementation by Portugal*, Rúben Guedes Dias raises a question of particular interest to Portuguese authorities and other stakeholders—whether Portuguese domestic law provides a legal regime that makes the Portuguese flag convenient or of convenience. A thorough legal analysis follows, drawing on a wide range of jurisprudence and academic literature, in addition to the provisions of UNCLOS. In particular, the chapter addresses various duties of flag States, including those associated with exclusive jurisdiction, and how these interact with the jurisdiction of coastal and port States. The chapter concludes with an overview of Portuguese domestic law, dealing first with the registration of ships and second with how Portuguese jurisdiction over ships flying the Portuguese flag is effectively exercised.

Finally, Part VI deals with the relationship between the ocean and science. It is frequently said that we know more about the moon than the ocean. The goal is not to discuss the accuracy of such a statement.¹⁶ Such a statement would sound nonsensical, however, if we already had enough knowledge by now to draw and paint an approximately complete landscape of the ocean. In a context characterized by knowledge scarcity and undeniable uncertainty, education and research play of course a fundamental role. The negotiations of UNCLOS were

¹⁶ See, for a discussion on the accuracy of this statement, Prema Arasu, Alan Jamieson, and Thomas Linley, “Do We Know More about the Moon than the Deep Sea? No,” *Astronomy*, January 25, 2023, <https://astronomy.com/news/2023/01/do-we-know-more-about-the-moon-than-the-deep-sea-no>.

not immune to the importance of research. It could not have been otherwise. This part takes a threefold approach: *first*, it addresses the legal aspects of marine scientific research; *second*, it analyzes the current political framework in which marine scientific research takes place; *third*, it refers to Portuguese research, education, and policy development projects in Antarctica.

In *The Right of Marine Scientific Research*, Gonalo Motta and Maria Lu s Mendes explain in detail the legal regime of marine scientific research established in UNCLOS. It is impossible to understand the structure and dynamics of modern international law, in general, and the regime of marine scientific research, in particular, without sovereignty and territoriality playing a central role. This is important for the topic of marine research because educational and research projects also take place in areas over which States exercise sovereignty or jurisdiction. In ABNJ, States are free to conduct research activities. The opposite is true for territorial and internal waters, where doing so depends on whether the States exercising sovereignty over the area in question allow it. Moreover, UNCLOS states that in these areas coastal States have “[...]the exclusive right to regulate , authorize and conduct marine scientific research.”¹⁷ This presents coastal States with the challenge of developing domestic regulations that must be compatible with UNCLOS under all circumstances. This chapter provides useful guidance for these States to do so.

In *Ocean Science: the benefits of marine scientific research for the ocean ecosystem and for society*, Helena Telino Neves and Giuliana Fazio discuss how scientific research is fundamental to improving the sustainable conservation of the ocean and society as a whole. In this context, SDG 14 and the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) are unavoidable political tools whose analysis proves useful in understanding what States need to achieve and how responsibilities should be distributed. Following this overview, readers are provided with information and data on the policies Portugal is pursuing to achieve the objectives of these international tools and fulfill its international commitments—even if some are not legally binding.

In *Going Beyond: Portuguese research, education and policy development in Antarctica*, Jos  C. Xavier, Jos  Abreu, Joana Frag o, Hugo Gu maro, Jose Queir s,

¹⁷ See, Article 245 of UNCLOS.

Marta Espírito Santo, José Seco and Patrícia Fialho share something most readers only dream of and marvel at when they watch a television program or a Netflix show—the wonders of Antarctic wilderness. This contribution, however, comes with a special surprise: Such wonders are revealed to us by the amazing scientific work of Portuguese scholars and researchers. This is evidence of the international commitment of Portugal and its research institutions to exploring the unknown and sharing their findings with the world. Everything in this chapter is pure expertise and excellence.

Academic work—collective or otherwise—that treats the ocean as the object need careful tailoring. It was, therefore, a matter of finding the right balance between identifying the issues to be addressed, on the one hand, and the methodological approaches to be taken, on the other. The success of this collective and interdisciplinary work depended heavily on our ability as editors to achieve these goals. The reader will note, however, that the educational background of many of the authors who have kindly contributed to this work is, for some exceptions, quite similar.¹⁸ Indeed, the study of law is particularly formative for their profiles. The issue of *how much law should be included in this collective work* was, therefore, constantly at stake. It appeared to us, however, that the legal approach is indispensable given the not-so-modest goal of this collective book—to serve as a reference for those who dare to navigate the troubled waters of ocean governance in Portugal and elsewhere. Shaping national public policy and participating in international fora requires so much, and to do so constructively requires, for obvious reasons, a deep understanding of the legal framework that governs ocean activities. Only in this way can legal boundaries be clearly drawn for States and other international and domestic actors. This exercise is essential if one is to provide valuable legal advice to them, including those within government or corporate structures, on what actions to take in a given situation. This is especially true for States such as Portugal that are fully committed to an international order based on the rule of law. In addition, it is just as important when the time comes and international negotiations begin and all those who have a say in the international community are called upon to take a stand on complex and intricate matters. It seems reasonable that there is probably

¹⁸ Even though they have quite diverse professional and academic experiences: from high-level government positions to academia and international scientific projects, from diplomacy to technical positions in domestic and international organizations.

no other area than that of the ocean in which Portugal's contributions may be so valuably unique. As important as this may be, however, it would be an equally poor and unforgivable choice to place a disproportionate emphasis on the legal aspects of ocean governance. It is our desire that the organization and content of this book is good enough to help us avoid falling into this trap.

The following four hundred pages are filled with remarkable insights and analyses that are based heavily on the professional and academic experiences of those who wrote them. So, they are not detached from the grim, fascinating and complex reality we individually and collectively face. They are the result of first-hand experience with all this reality—not only of the sad and repulsive shortcomings and inadequacies, but also of the spectacular and sometimes incredible successes and uplifting moments. There is much to learn from these experiences.

Finally, it is important to underline that Portugal's history and culture cannot be fully grasped without considering the deep-rooted relationship between Portugal and the ocean. And it seems undeniable that Portugal's collective present and future is inextricably connected to the ocean in two ways. *First*, it benefits from the vast resources available in the maritime areas under its jurisdiction, as well as from its privileged geostrategic position in the North Atlantic. *Second*, it contributes to sustainable and fair ocean governance.

All the authors have a connection to Portugal, in a way that we believe shapes each of the chapters that make up the book in a different way. Is there a unique and distinctive Portuguese approach to the ocean in terms of science and policy? It is hard to say, and probably it does not even matter. What can be said with relative certainty is that the immense knowledge and experience that most of the authors possess is also cultural and has its roots in a special kind of attachment to the ocean. We are very grateful to all of them for their generosity.

PART I |

OCEAN GOVERNANCE AND THE RULE OF LAW

CHAPTER 1 |

THE CODIFICATION AND PROGRESSIVE DEVELOPMENT OF THE LAW OF THE SEA

Fernando Loureiro Bastos

A. Introduction

Adequate comprehension of the law of the sea—or international law of the sea—and its structural features requires that proper attention be paid to the details of international law while the nature of that field are adequately understood. *First*, it is essential to consider that international law is a decentralized legal order that is created and applied by those who subject themselves to its jurisdiction. International law is not applicable to or imposed on subjects that are in a position of subordination *vis-à-vis* those who create it. This is quite different from what occurs under domestic law, regardless of whether it applies to States or international organizations. Accordingly, the will of international law subjects is central and fundamental to the creation, application, amendment, and replacement of the international legal norms that govern their actions.

Second, States remain the main holders of military force and there is no entity in any position of superiority able to impose any type of conduct on them. In these terms, it should be stressed that the decisions taken by the Security Council are ultimately the result of the positions held by the State members of this body, in particular by its permanent members—China, France, Russian Federation, United Kingdom and the United States America.

Third, conflict resolution is usually limited to direct diplomatic negotiations between the parties to the dispute in question, in contrast to what usually happens under the domestic law of States. It is only when States have been unable to find a solution compatible with their interests through diplomatic negotiation that consideration will be given to the possibility of having recourse to a third

party, whether through non-institutionalized mechanisms or by applying to international courts or tribunals. Even so, accepting the power of a third-party to dictate a solution to a conflict continues to be relatively rare in international relations between States.

The view presented above corresponds, in essence, to a classic view on the existence of a legislator, a police force, and judges in international law. Although there has been a rather significant evolution in the last decades, in particular with the multiplication of the mechanisms of international cooperation and with the progressive use of the international courts and tribunals, the model of international law in force continues to be based on the will of States and on the pursuit of their interests.

The existence of this model does not prevent States from pursuing common interests through international cooperation, which is particularly appropriate to spaces like the maritime ones where permanent occupation is not possible. While powers exercised by States over their land territories are exclusive and exclusionary, in contrast, there is a constant attempt in relation to the seas and oceans to achieve the harmonization of the powers, uses and activities of the various States and the vessels that have their nationality.

When dealing with international law of the sea, special attention must be paid to the distinction between written and non-written sources of international law and between binding and non-binding sources of international law. In the first case, although the written sources are predominant today, customary international law continues to be of significant importance to how States act, especially those that are not part of the 1958 Geneva Conventions and/or UNCLOS. In the second case, there has been a proliferation of written documents of international law of the sea that has taken place in the last decades. Therefore, it is crucial to be able to distinguish between those which are intended to produce legal effects—such as treaties and international agreements—and those that do no more than incorporate standards of conduct, the enforcement of which cannot be required or imposed under international law. In this sense, it is instructive to verify that the negotiations of the BBNJ Agreement aimed to achieve “[...] an international legally binding instrument under the United Nations Convention on the Law of the Sea.”¹

¹ Intergovernmental Conference on BBNJ Agreement [see, General Assembly resolution 72/249, *International legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation*

B. The Codification of the International Law of the Sea

For centuries, up until the process of the codification and progressive development of the international law of the sea initiated with the First United Nations Conference on the Law of the Sea in the 1950s,² international law of the sea was almost exclusively composed of customary law rules. This can be easily understood because they were structured around very simple rules, such as the freedom of the seas and the national non-appropriation of maritime spaces. After the First World War, the codification of the international law of the sea was unsuccessfully attempted at the 1930 Hague Codification Conference under the auspices of the League of Nations. On that occasion, States failed to find common ground even on the creation of diverse jurisdictional maritime spaces, in particular through the establishment of the so-called *contiguous zone*.

International law of the sea is a creation of States, especially of coastal States. Therefore, when States wish to create or modify any legal regime included in the international law of the sea, such a creation or a modification may take place in a short period. In the last century, the creation of legal regimes for the continental shelf during the 1950s and the EEZ during the 1970s are excellent examples of the results of the readiness of States to change the existing legal rules in force rapidly. In turn, the way protected marine areas have emerged and consolidated over the past three decades has demonstrated how States can act outside UNCLOS without having to reform the international legal framework as such.

The replacement of the model of the international law of the sea in force by the end of the Second World War took place as a result of three intergovernmental

and sustainable use of marine biological diversity of areas beyond national jurisdiction, A/RES/72/249 (January 19, 2018), available at undocs.org/en/A/RES/72/249. The first session of the intergovernmental conference was convened from September 4-17, 2018; the second session from March 25 to April 5, 2019; the third session from August 19-30, 2019. The fourth session of the intergovernmental conference, which was postponed owing to the Covid-19 pandemic, lasted from March 7-18, 2022 [see, General Assembly decision 74/543, *Intergovernmental conference on an international legally binding instrument 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*, A/74/L.41 (March 9, 2020), available at undocs.org/en/A/74/L.41 and General Assembly decision 75/570, *Intergovernmental conference on an international legally binding instrument 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*, A/75/L.96 (June 9, 2021), available at undocs.org/en/A/75/L.96].

² See, on First United Nations Conference on the Law of the Sea (Geneva, February 24 to April 27, 1958), the documentation available at United Nations, “First United Nations Conference on the Law of the Sea,” Diplomatic Conferences, accessed November 24, 2022, https://legal.un.org/diplomaticconferences/1958_los/.

conferences convened by the United Nations. *First*, there was the First United Nations Conference on the Law of the Sea, held in Geneva between February 24 and April 27, 1958, in which eighty-six States participated—seven of which were not members of the United Nations. This was followed by the Second United Nations Conference on the Law of the Sea, held in Geneva between March 16 and April 26, 1960, in which an equal number of eighty-six States participated.³ *Finally*, there was the Third United Nations Conference on the Law of the Sea, which took place in various locations—mostly in New York, with a meeting in Caracas and another in Geneva. This involved eleven sessions of work between 1973 and 1982, and one-hundred and sixty States participated.⁴

Today, customary international law remains a particularly important source of the international law of the sea, despite the proliferation of international written commitments. This is particularly relevant to those States that are not parties to UNCLOS, such as the United States of America, Türkiye, or Venezuela.

Determining what exactly customary international law is in the context of the international law of the sea is a much more arduous task than one might think at first glance. The creation and maintenance of customary international norms arise primarily from the conduct of subjects of international law, either directly through activities in international relations or indirectly as a result of their activities through international intergovernmental organizations.⁵ These difficulties are particularly relevant when dealing with UNCLOS, as it sets out the general legal framework for action in the seas and oceans, consistent with its function as the “Constitution of the Oceans.” There is the possibility of viewing it as an articulated set of customary international law norms or potential customary international law norms, particularly for States that are not parties to it. In fact, there is nothing to prevent “a rule set forth in a treaty from becoming binding upon a third State as a customary rule of international rule, recognized

³ See, on the Second United Nations Conference on the Law of the Sea (Geneva, March 17 to April 26, 1960), the documentation available at United Nations, “Second United Nations Conference on the Law of the Sea,” <https://legal.un.org>, accessed December 17, 2022, https://legal.un.org/diplomaticconferences/1960_los/.

⁴ On the Third United Nations Conference on the Law of the Sea (1973-1982), see the documentation available at United Nations, “Third United Nations Conference on the Law of the Sea,” <https://legal.un.org>, accessed December 17, 2022, https://legal.un.org/diplomaticconferences/1973_los/.

⁵ General Assembly, *Report of the International Law Commission on the work of its seventieth session*, April 30 to June 1, 2018, and July 2 to August 10, 2018, Supplement No. 10 (A/73/10), pp. 122–156, available at undocs.org/en/A/73/10.

as such.”⁶ However, it is one thing to consider a conventional norm based on a relevant practice as a customary international law norm of general application, while it is quite another thing to convert a conventional legal regime as such into a customary law norm without enough evidence of a relevant practice.

Since the mere existence of an unwritten customary law norm presents many difficulties in terms of its content and notoriety, it is useful to consider the international jurisprudence that has dealt with customary international law norms in the field of international law of the sea. In the course of its activity, the ICJ has had to determine the customary international law character of a large number of unwritten rules of international law.⁷ It is not yet possible to report on a similarly intense activity of ITLOS, but two general assessments of the classification of norms as having a customary international law character must be referred: the *Dispute concerning delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal (Bangladesh/Myanmar)*⁸ and the *Responsibilities and obligations of States sponsoring persons and entities with respect to activities in the Area (Request for Advisory Opinion submitted to the Seabed Disputes Chamber)*.⁹

C. The First and Second United Nations Conferences on the Law of the Sea

The First United Nations Conference on the Law of the Sea ended with the conclusion of four conventions and an optional signature protocol, based on the seventy-three articles drafted by the International Law Commission: (i) the 1958 Geneva Convention on the High Seas, consisting of thirty-seven articles, which entered into force on September 30, 1961; (ii) the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone, consisting thirty-two articles, which entered into force on October 10, 1965; (iii) the 1958 Geneva Convention on the Continental Shelf, consisting of fifteen articles,

⁶ See, Article 38 of the VCLT.

⁷ J. Ashley Roach, “Today’s Customary International Law of the Sea,” *Ocean Development & International Law* 45, No. 3 (July 3, 2014): 239–59.

⁸ *Delimitation of the maritime boundary in the Bay of Bengal (Bangladesh/Myanmar)*, Judgment, ITLOS Reports 2012, p. 55, para.183.

⁹ *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, February 1, 2011, ITLOS Reports 2011, p. 47, para. 135.

which entered into force on June 10, 1965; (iv) the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas, consisting of twenty-two articles, which entered into force on March 20, 1966; and (v) the 1958 Optional Protocol of signature concerning the Compulsory Settlement of Disputes, consisting of seven articles, which entered into force on September 30, 1961.

The option of concluding five conventional international instruments as an alternative to a single convention was due to the desire to separate the various issues and to give States greater latitude regarding the newly created international legal regimes. This also meant that each of those conventions had different State parties.

The Second United Nations Conference on the Law of the Sea was convened specifically to consider two issues: (i) the establishment of an outer limit for the territorial sea; and (ii) the delimitation of fishing areas. The 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone had set the outer limit of the contiguous zone at twelve nautical miles, but it had failed to achieve an equivalent result for the outer limit of the territorial sea. Despite efforts during the negotiations, no agreement was reached on the issues discussed during the Second United Nations Conference on the Law of the Sea.

D. The Third United Nations Conference on the Law of the Sea

The Third United Nations Conference on the Law of the Sea convened over a period of nearly ten years—between 1973 and 1982—had meeting sessions lasting a total period of thirty-two months. UNCLOS was the result of this conference. It emerged from an original negotiation process that sought to harmonize a wide range of issues and to reconcile a wide range of interests. Unlike the First United Nations Conference on the Law of the Sea, the Third United Nations Conference on the Law of the Sea was not based on a draft text prepared by the International Law Commission. As a result of the substantial change in the composition of the international community that resulted from the decolonization movement, the newly independent States wanted to ensure maximum freedom of negotiation. They believed that the rules provided for in the 1958 Geneva Conventions corresponded to a model of international law dominated by Western States—some of which were former colonial empires.

The work of the Third United Nations Conference on the Law of the Sea had two rather ambitious objectives. On the one hand, it sought to transform an

extraordinarily extensive agenda into a unitary international text, which would include practically all matters related to the use of the oceans in peacetime. And, on the other hand, it wanted to do so in a consensual way in order to create an international legal regime that would receive universal participation and application.

The intention of creating an international legal regime that could be as comprehensive as possible led to the inclusion of matters relating to maritime spaces both within and outside national jurisdiction in the same negotiation. In the case of the enlargement of the maritime spaces under national jurisdiction, the novelty was fundamentally within the limits that would be imposed on the new powers recognized to coastal States. The most important issue to be solved was to find a balance between the freedom of navigation and access to and exploration for and exploitation of natural resources. In the case of submerged spaces beyond national jurisdiction, in contrast, the novelty could already be found in the basic idea to be discussed by the participants in the negotiation, viz. the internationalization of a maritime space—the Area. The freedom granted to the negotiators was, therefore, extraordinarily wide, since there were no previous examples that could serve as guidelines, and the developing States were determined to create an instrument that would lead to the transformation of the existing international law.

The objective of the Third United Nations Conference on the Law of the Sea was, thus, to achieve a single international instrument so that States would not be free to choose only the advantageous aspects of the regulation that would be elaborated upon in contrast to what had happened with the results of the First United Nations Conference on the Law of the Sea. The idea was to find a package deal that would satisfy the interests of all participants and reconcile manifold interests—an international legal regime regarding all matters, the result of a balance between the various States, in terms both of rights and duties.

Accordingly, a specific type of negotiating process was institutionalized, under which the issues would be debated until a solution that would meet the various interests at stake would be found. Notwithstanding the particularities of the negotiating scheme, the initial forecasts pointed to the conclusion of the work of the Third United Nations Conference on the Law of the Sea within a period of about four years. This deadline has, however, not been met because the

work on Part XI (the Area) has dragged on as a result of intense ideological confrontation.

There are some positive aspects of the work of the Third United Nations Conference on the Law of the Sea that should be highlighted. On the one hand, it ended with the conclusion of a binding text, despite the large number of participants and the considerable number of issues discussed. On the other, all States participated, regardless of the nature of their connection to the sea or the nature of their interest or specialization in matters of the international law of the sea.

E. The United Nations Convention on the Law of the Sea

UNCLOS is a legal monument, regardless of any evaluation of its content. It consists of a preamble, a text of three-hundred and twenty articles divided into seventeen parts, nine annexes to the text of UNCLOS, and six annexes to the Final Act.¹⁰ Part I (Introduction) and Part VIII (Regime of Islands) each contain only one article. In contrast, Part XI (Area) goes from Article 133 to Article 191, while Part XII (Protection and Preservation of the Marine Environment) goes from Article 192 to Article 237, which are longer than most of the multilateral treaties in force.

The annexes to the text of UNCLOS are of unequal size—from the list of highly migratory species in Annex I to the forty-one articles of Annex VI dedicated to the Statute of ITLOS. The annexes to the Final Act vary in importance and contain resolutions of temporal validity and norms of equal importance to those in the text of UNCLOS, such as the Statement of Understanding concerning a Specific Method to be Used in Establishing the Outer Edge of the Continental Margin, which is included in Annex II.¹¹

UNCLOS potentially applies to the entire maritime space, whether or not it is under the jurisdiction of States, and it aims to comprehensively regulate the different uses of the maritime space. On the one hand, it regulates the division of maritime space from a horizontal perspective. It aims to establish precise and universally applicable limits for maritime areas that belong to States or that can

¹⁰ See, “Final Act of the Third United Nations Conference on the Law of the Sea,” accessed December 15, 2022, https://www.un.org/depts/los/convention_agreements/texts/final_act_eng.pdf.

¹¹ See, Annex II to UNCLOS, *Statement of Understanding concerning a Specific Method to be Used in Establishing the Outer Edge of the Continental Margin*.

be claimed by States. In contrast, it refers to international or internationalized maritime areas. On the other hand, it regulates the division of maritime space in a vertical perspective, as it aims to regulate the water column and its surface, as well as the seabed and subsoil of the sea.

The importance of UNCLOS also derives from its primacy over other international commitments related to the maritime space, in particular by providing a framework for international agreements to implement it, as in the case of (i) the 1994 Agreement relating to the implementation of Part XI of the Convention, which concerns the internationalized legal regime of the Area; and (ii) the 1995 United Nations Fish Stocks Agreement, which governs the management and catch of certain fish species.

F. The 1994 Agreement relating to the Implementation of Part XI of UNCLOS and the Two Versions of Part XI of UNCLOS

The peculiarities of the negotiation process that led to the adoption of UNCLOS had an unintended effect: the emergence of two versions of the same legally binding international document. On the one hand, UNCLOS was signed on December 10, 1982, in Montego Bay, and, on the other hand, it entered into force on November 16, 1994, as a result of the 1994 Agreement relating to the implementation of Part XI of the Convention.

The latter is one of the best examples of the pragmatic way in which the international system works. In theory, there is a rather complex legal document. In practice, States were able to find an effective solution to the problems of entry into force and universal production of effects of UNCLOS because the disagreements that blocked its entry into force were limited to Part XI—concerning the Area—and the annexes and related resolutions.

At the end of the eighties of the last century, the international community was faced with two options. Either it retained the text of the Convention as it had been signed on December 10, 1982, and developed States would not participate because of their opposition to the regime envisaged for the exploitation of mineral resources in the Area. Or a way of achieving universal participation had to be found in order to safeguard the existence of a general legal regime for the oceans and to avoid a duality of regimes applicable to the various uses of the common space beyond national jurisdiction.

In general, there was widespread agreement on the legal commitment enshrined in UNCLOS. On most issues, negotiations among States achieved a balance between the rights and duties of the various subjects. Despite the widespread acceptance of the idea of the common heritage of humanity in relation to submerged space beyond national jurisdiction and the years of development of a detailed legal regime, there was always an insurmountable contradiction between the interests of developing and developed States in relation to the model of exploitation of mineral resources that might be found in the Area.

The negotiations that lead to the 1994 Agreement relating to the implementation of Part XI of the Convention were based on an invitation of the General Assembly to all States “to make renewed efforts to facilitate universal participation in the Convention.”¹² Two phases can be distinguished in the informal consultations, which lasted four years. The first phase, which lasted until the end of 1991, identified the issues on which there was disagreement and sought ways to overcome them. The second phase, which lasted until June 1994, was devoted to drafting a text that contained the solutions on which there was consensus and to creating solutions that would have their effect in conjunction with UNCLOS.

Initially, it seemed that the problem could be solved by choosing between two classical solutions, namely the deletion of Part XI from UNCLOS or a precise and detailed amendment of Part XI. At the end of the informal consultations, the adopted solution no longer had any relation to the original alternatives. In fact, neither Part XI was deleted from UNCLOS nor were the articles specifically amended. Rather, the result of these discussions was an overlap of the legal regimes whose compatibility was established by Article 2 of the 1994 Agreement relating to the implementation of Part XI of the Convention. Article 2 (Relationship between this Agreement and Part XI) of the 1994 Agreement relating to the implementation of Part XI of the Convention reads as follows:

1. The provisions of this Agreement and part XI shall be interpreted and applied together as a single instrument. In the event of any inconsistency between this Agreement and part XI, the provisions of this Agreement shall prevail.
2. Articles 309 to 319 of the Convention shall apply to this Agreement as they apply to the Convention.

¹² General Assembly resolution 44/26, *Law of the sea*, A/RES/44/26 (November 20, 1989), available at undocs.org/en/A/RES/44/26.

The 1994 Agreement relating to the implementation of Part XI of the Convention is expressly limited to setting the conditions for the implementation of Part XI. In practice, it amends the previous regulation. Therefore, great care has been taken in the wording of the changes, and the terms *modification* or *amendment* have not been used throughout the text. Accordingly, 1994 Agreement relating to the implementation of Part XI of the Convention is presented as an international commitment to implement of Part XI and supplementary regulations. It uses the wording “shall not apply” when it seeks to depart from a provision of the original version of UNCLOS. And Article 2, as noted above, expressly establishes its primacy. It is therefore particularly clear that some of the provisions of the Agreement manifestly go beyond the mere interpretation of the original wording of Part XI and substantially alter what was originally intended, even when it uses the formula that a relevant provision “shall be interpreted and applied in accordance with the Agreement.”¹³

The 1994 Agreement relating to the implementation of Part XI of the Convention reflects the difficulties encountered in resolving a complex and unprecedented legal problem, namely the legal effects of a clause containing explicit material limits on the revision of an international convention that was not yet in force. This was the reason why no intergovernmental conference had been convened for this purpose, and discussions on the adoption of a binding document followed four principles. *First*, to change the text of UNCLOS as little as possible. *Second*, to retain some of the fundamental principles of Part XI, especially “the common heritage of mankind.”¹⁴ *Third*, to avoid a duality of legal regimes governing the same matter. *Fourth*, establishing a relationship between UNCLOS and the 1994 Agreement relating to the implementation of Part XI of the Convention that would allow States that had already joined the former to safeguard their position.

The 1994 Agreement relating to the implementation of Part XI of the Convention was adopted by the General Assembly on July 28, 1994, and opened for signature the following day.¹⁵ The consensus reached during the negotiations

¹³ See, Article 2(1) of the 1994 Agreement relating to the implementation of Part XI of the Convention.

¹⁴ See, Article 136 of UNCLOS.

¹⁵ General Assembly decision 48/263, *Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982*, A/RES/48/263 (August 17, 1994), available at undocs.org/en/A/RES/48/263.

allowed for a vote of one hundred and twenty-one in favor, none against, and only seven abstentions. It should be noted, however, that fifty United Nations Member States were not present for the vote.

From a formal point of view, the most complex problem was to ensure that UNCLOS in its original version and the 1994 Agreement relating to the implementation of Part XI of the Convention would enter into force simultaneously. The idea was to avoid having two legal regimes on the same subject—the original Part XI and the regime provided for in the revised Part XI—coexisting at the same time. This situation could have arisen if States that had already ratified UNCLOS and had no interest in the exploitation of resources present in the submerged space beyond national jurisdiction had not been bound by the 1994 Agreement relating to the implementation of Part XI of the Convention. The solution to this problem was the provisional application of the 1994 Agreement relating to the implementation of Part XI of the Convention on the basis of an Italian proposal adopted in April 1993. Under this proposal, the provisions of the 1994 Agreement relating to the implementation of Part XI of the Convention would become binding on the sixty States that have ratified the Convention upon the entry into force of UNCLOS, unless they expressed their objection to that effect. For those states that have not yet ratified UNCLOS, the international effects would result from express consent.

The final entry into force of the 1994 Agreement relating to the implementation of Part XI of the Convention was subject to the fulfillment of three concurrent conditions under Article 6, namely (i) the consent of forty States, of which seven had to be pioneer investors and five developed States. The 1994 Agreement relating to the implementation of Part XI of the Convention entered into force on July 28, 1996, finally ending theoretical speculation about the problems that might arise from the coexistence of the two legal regimes applicable to the regulation of submerged space beyond national jurisdiction.

G. The United Nations 1995 Fish Stocks Agreement

The international conference that led to the 1995 United Nations Fish Stocks Agreement was held during five sessions at the United Nations Headquarters in New York, between July 1993 and August 1995. It ended, rather than as originally

planned, with the consensual adoption of this legally binding commitment. The 1995 United Nations Fish Stocks Agreement consists of fifty articles divided into thirteen parts and two annexes. Although it is an implementing agreement of UNCLOS, there are numerous differences from the 1994 Agreement relating to the implementation of Part XI of the Convention that should be highlighted.

First, the link between UNCLOS and the 1995 United Nations Fish Stocks Agreement is much less intense, as no provision of UNCLOS is explicitly amended or suspended, and substantial cross-references to specific provisions of UNCLOS are the exception.¹⁶ The link between the two international instruments is essentially established by Part VIII of the 1995 United Nations Fish Stocks Agreement—concerning the peaceful settlement of disputes. In addition, participation in this international agreement is open to all States, whether or not they are parties to UNCLOS—this is relevant to the participation of the United States of America.¹⁷ *Second*, the 1995 United Nations Fish Stocks Agreement must be interpreted and applied in the context of and in a manner consistent with UNCLOS.¹⁸ However, UNCLOS does not have primacy over other international agreements.¹⁹ *Finally*, because of the relative low level of interest the issue had raised during the Third United Nations Conference on the Law of the Sea, the 1995 United Nations Fish Stocks Agreement was not limited to developing or regulating UNCLOS. It also covers (i) general principles for the conservation and management of living species; (ii) rights of non-members or non-participating States; (iii) the duties of flag States; (iv) the special status of developing States; (v) the implementation of conservation and management measures; and (vi) the settlement of disputes.

The relationship between the 1995 United Nations Fish Stocks Agreement and UNCLOS is maintained primarily through their common territorial scope and the division of authority in areas within and outside national jurisdiction. The 1995 United Nations Fish Stocks Agreement regime is designed to apply to the ABNJ.²⁰ It also extends the obligations assumed by States parties to the 1995 United Nations Fish Stocks Agreement to coastal States and to areas under

¹⁶ See, Articles 7(2)(a), 16(1), and 20(6) of the 1995 United Nations Fish Stock Agreement.

¹⁷ See, Articles 37 to 39 of the 1995 United Nations Fish Stock Agreement.

¹⁸ See, Article 4 of the 1995 United Nations Fish Stock Agreement.

¹⁹ See, Article 44 of the 1995 United Nations Fish Stock Agreement.

²⁰ See, Article 3 of the 1995 1995 United Nations Fish Stock Agreement.

national jurisdiction.²¹ This means that general principles, the precautionary approach and mechanisms established to achieve compatibility of conservation and management measures apply *mutatis mutandis*, both within and outside areas under national jurisdiction.

The 1995 United Nations Fish Stock, which continues to consider straddling fish stocks and highly migratory fish stocks as natural resources, identifies “long-term conservation” and “sustainable exploitation” as the general objectives of the agreed international legal regime.²² It is therefore expected that the obligation for cooperation between coastal States and States fishing for the species in question on the high seas will be extended as far as possible.²³

H. Progressive Development through Multilateral International Treaties

After the conclusion of the 1958 Geneva Conventions, most of the general rules of international law of the sea are found in multilateral international conventions, although the importance of customary international law cannot be ignored, as has been pointed out. Thus, a proper understanding of the international law of the sea requires consideration of framework international conventions, particularly UNCLOS. Three groups of such conventions should be considered in the context of the international law of the sea.

First, three of the four 1958 Geneva Conventions should be mentioned because they are the first international treaties codifying the international law of the sea. The possibility of these conventions being invoked and applied contemporaneously is demonstrated by the existence of States that have not ratified or acceded to UNCLOS, such as the United States of America, Türkiye, and Venezuela.²⁴ *Second*, reference must be made to UNCLOS and to its implementing agreements—1994 Agreement relating to the implementation of Part XI of the Convention and 1995 United Nations Fish Stocks Agreement. *Third*, it is important to mention other international instruments that regulate the peaceful use of seas and oceans, such as

²¹ See, Articles 5-7 *ex vi* Article 3(1) and (2) of the 1995 United Nations Fish Stock Agreement.

²² See, Article 2 of the 1995 United Nations Fish Stock Agreement.

²³ See, Article 5 of the 1995 United Nations Fish Stock Agreement.

²⁴ According to the UNTS, the United States of America ratified the 1958 Geneva Conventions on April 12, 1961, while Venezuela ratified them on August 15, 1961, with the exception of the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas, which it ratified on July 10, 1963.

- (i) the Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water;²⁵
- (ii) the Treaty for the Prohibition of Nuclear Weapons in Latin America;²⁶
- (iii) the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof;²⁷
- (iv) the South Pacific Nuclear Free Zone Treaty;²⁸ and
- (v) the Treaty on the Southeast Asia Nuclear Weapon-Free Zone.²⁹

It should be borne in mind that numerous multilateral international treaties related to the international law of the sea have emerged in recent decades, for example, in the areas of shipping, fisheries, and the protection and conservation of the marine environment, all of which are part of the progressive development of this branch of international law. The first area deals with the international treaties on navigation concluded under the auspices of the IMO. These fall within the working area of maritime law, such as

- (i) the Convention on the International Regulations for Preventing Collisions at Sea, 1972;³⁰
- (ii) the SOLAS Convention, with the amendments of the MARPOL 73/78;
- (iii) the International Convention on Maritime Search and Rescue;³¹
- (iv) the SUA Convention, the Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental

²⁵ Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, August 5, 1963, 480 UNTS 6964. 45.

²⁶ Treaty for the Prohibition of Nuclear Weapons in Latin America, February 14, 1967, 634 UNTS 9068. 281 (also known as the *Treaty of Tlatelolco*).

²⁷ Treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof, February 11, 1971, 955 UNTS 13678. 115.

²⁸ South Pacific Nuclear Free Zone Treaty, August 6, 1985, 1445 UNTS 24592. 177 (also known as the *Treaty of Rarotonga*).

²⁹ Treaty on the Southeast Asia Nuclear Weapon-Free Zone, December 15, 1995, 1981 U.N.T.S. 33873. 129.

³⁰ Convention on the international regulations for preventing collisions at sea, 1972, October 20, 1972, 1050 UNTS 15824. 16 (also known as *COLREGs Convention*).

³¹ International Convention on maritime search and rescue, 1979 (with annex), April 27, 1979, 1405 UNTS 23489. 97 (also known as the *SAR Convention*).

- (v) Shelf,³² with the amendments of the 2005 Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation;³³
- (vi) the International Convention on Salvage, 1989;³⁴ and
- (vii) the International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004.³⁵

Second, we are dealing with international treaties regulating fishing included in the scope of activities of FAO, such as

- (i) the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas;
- (ii) the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, concluded in Rome;³⁶
- (iii) the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea;³⁷
- (iv) the Southern Indian Ocean Fisheries Agreement;³⁸
- (v) the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean;³⁹ and
- (vi) the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.⁴⁰

³² Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf, March 10, 1988, 1678 UNTS 29004. 201.

³³ Also known as *2005 SUA Convention*.

³⁴ International Convention on Salvage, 1989, April 28, 1989, 1953 UNTS 33479. 165.

³⁵ International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004, February 13, 2004, 3282 UNTS 55544. 92 (also known as the *Ballast Water Management Convention*).

³⁶ Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, November 24, 1993, 2221 UNTS 39486. 91 (also known as the *FAO Compliance Agreement*).

³⁷ Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, June 16, 1994, LEX-FAOC005117.

³⁸ Southern Indian Ocean Fisheries Agreement, July 7, 2006, 2835 UNTS 49647. 409.

³⁹ Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean (with annexes, declaration and *procès-verbal* of rectification, Wellington, April 1, 2010), November 14, 2009, 2899 UNTS 50553. 211.

⁴⁰ Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (with annexes), November 22, 2009, 3161 UNTS 54133. 1.

Third, there is a whole series of international treaties that deal with the protection and preservation of the marine environment, such as:

- (i) the International Convention on the Prevention of Marine Pollution by Dumping of Waters and Other Matter;⁴¹
- (ii) the Convention for the Prevention of Marine Pollution from Land-Based Sources;⁴²
- (iii) the MARPOL Convention, as modified by MARPOL 73/78;
- (iv) the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region;⁴³
- (v) the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean;
- (vi) the OSPAR Convention;
- (vii) the Agreement on Co-operation in Research, Conservation and Management of Marine Mammals in the North Atlantic;⁴⁴
- (viii) the Barcelona Convention; and
- (ix) the Agreement Concerning the Creation of a Marine Mammal Sanctuary in the Mediterranean.⁴⁵

The multiplication of international law commitments whose scope is exclusively or partially limited to the maritime spaces means that the need to harmonize their respective legal and international regimes should be considered. Examples of the need for, and difficulties in, the simultaneous application of different international legal regimes in the field of the international law of the sea can be found in the relationship between UNCLOS and the other generally

⁴¹ Convention on the prevention of marine pollution by dumping of wastes and other matter (with annexes and *procès-verbal* of rectification of the Russian originals deposited in London, dated March 13, 1975), December 29, 1972, 1046 UNTS 15749. 120 (also known as the *London Dumping Convention*).

⁴² Convention for the prevention of marine pollution from land-based sources (with annexes), June 4, 1974, 1546 UNTS 26842. 103 (also known as the *1974 Paris Convention*).

⁴³ Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, March 23, 1981, IUCN (ID: TRE-000548).

⁴⁴ Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic, April 9, 1992, LEX-FAOC024298 (also known as *NAMMCO Agreement*).

⁴⁵ Agreement concerning the creation of a marine mammal sanctuary in the Mediterranean, November 25, 1999, 2176 UNTS 38306, 247.

applicable regimes found in the Convention on Biological Diversity, concluded at Rio de Janeiro, on June 5, 1992,⁴⁶ and in the UNESCO Convention on the Protection of the Underwater Cultural Heritage, concluded at Paris, on November 2, 2001.⁴⁷

I. Progressive Development through International Case Law

The jurisprudence of international courts and tribunals, particularly ITLOS and the ICJ, is an important source for the progressive development of the international law of the sea, as it aids in the determination of the meaning of the international law in force through the settlement of disputes. As noted above, international jurisprudence has played a critical role in revealing the rules of customary international law. As the international law of the sea has developed, the work of international courts and tribunals has been extremely important in the delimitation of maritime areas, particularly the continental shelf and the EEZ. Consideration should also be given to arbitral awards rendered under the auspices of the PCA by arbitral tribunals under Annex VII of UNCLOS.

J. Progressive Development through Acts of International Organizations and Soft Law

The acts issued by international organizations are also an important source for the progressive development of the international law of the sea, especially those acts that are issued by entities belonging to, or associated with, the United Nations, such as the IMO, FAO, or the ISA. These acts—considered as secondary law of international organizations—can be numerous and quite diverse, depending on the areas of activity in which international organizations develop their activities and their legal competences. For example, acts issued by the IMO are of particular importance (i) in regulating shipping, as in the case of traffic separation schemes in straits subject to transit passage regulation and in territorial seas under the SOLAS Convention;⁴⁸ and (ii) in creating a special type of marine protected area—the PSSAs—established under the

⁴⁶ Convention on Biological Diversity, June 5, 1992, 1760 UNTS 30619. 79.

⁴⁷ Convention on the Protection of the Underwater Cultural Heritage (with annex), November 2, 2001, 2562 (Part I) UNTS 45694. 3.

⁴⁸ See, Chapter V of the SOLAS Convention.

MARPOL Convention and the SOLAS Convention. PSSAs are currently governed by the Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas,⁴⁹ which replaced the Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas.⁵⁰ The ISA—established by UNCLOS to operate in the Area⁵¹—has the specific task of establishing the necessary regulations for the exploitation of mineral resources in an internationalized space. To this end, several regulations have been adopted, such as:

- (i) the Decision of the Assembly of the International Seabed Authority relating to the Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area;⁵²
- (ii) the Decision of the Assembly of the International Seabed Authority relating to the Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area;⁵³ and
- (iii) the Decision of the Council of the International Seabed Authority relating to amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area and related matters.⁵⁴

Finally, soft law should be mentioned as a source for the progressive development of the international law of the sea. Soft law consists of a variety of international legal documents that have in common that they are instruments of international law of the sea that are not legally binding. Soft law documents

⁴⁹ IMO Assembly resolution A 24/Res.982, *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, A/24/Res.982 (February 6, 2006), available at <https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/A24-Res.982.pdf>.

⁵⁰ IMO Assembly 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*, A 22/Res.927 (November 29, 2001), available at [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.927\(22\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.927(22).pdf).

⁵¹ See, Articles 156 to 185 of UNCLOS.

⁵² ISA Assembly decision ISBA/16/A/12/Rev.1, *Decision of the Assembly of the International Seabed Authority relating to the regulations on prospecting and exploration for polymetallic sulphides in the Area* (November 15, 2010), available at undocs.org/en/ISBA/16/A/12/Rev.1.

⁵³ ISA Assembly decision ISBA/18/A/11, *Decision of the Assembly of the International Seabed Authority relating to the Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area* (October 22, 2012), available at undocs.org/en/ISBA/18/A/11.

⁵⁴ ISA Council decision ISBA/19/C/17, *Decision of the Council of the International Seabed Authority relating to amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area and related matters* (July 22, 2013), available at undocs.org/en/ISBA/19/C/17.

may have a wide variety of names, such as guidelines, codes of conduct, or declarations of principles, and they may be issued as part of the activities of international organizations or as the result of the work of international conferences. Depending on the intentions of those involved in their drafting, soft law documents may be retained as non-binding instruments or they may form the basis for future binding international legal regimes once the viability and adequacy of the regimes they create have been tested. The importance of soft law instruments in the field of the international law of the sea can be seen in some examples in areas such as environmental protection, port state control, anti-piracy, shipping, and fisheries.

- (i) In the area of environmental protection,
 - a. the 1995 Global Programme of Action for the Protection of the Marine Environment from Land-based Activities;⁵⁵
 - b. the 1995 Washington Declaration of the Protection of the Marine Environment from Land-based Activities, or Washington Declaration;⁵⁶ and
 - c. the Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources.⁵⁷
- (ii) In the area of port state control,
 - a. the 1982 Paris Memorandum of Understanding on Port State Control;⁵⁸
 - b. the 2000 Black Sea Memorandum of Understanding on Port State Control;⁵⁹ and

⁵⁵ UNEP, “The Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities,” <https://www.unep.org>, accessed November 24, 2022, <https://www.unep.org/explore-topics/oceans-seas/what-we-do/addressing-land-based-pollution/governing-global-programme>.

⁵⁶ “Washington Declaration on Protection of The Marine Environment from Land-Based Activities, Signed in Washington, D.C., on November 1, 1995,” accessed November 24, 2022, <https://wedocs.unep.org/bitstream/handle/20.500.11822/13421/WashingtonDeclaration.pdf?sequence=1%26isAllowed=y%A0>.

⁵⁷ UNEP, “Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources,” accessed November 24, 2022, https://wedocs.unep.org/bitstream/handle/20.500.11822/4998/85wg118_inf23_eng.pdf?sequence=1&isAllowed=yx.

⁵⁸ “1982 Paris Memorandum of Understanding on Port State Control, Signed in Paris, on January 26, 1982,” accessed November 24, 2022, https://seafarersrights.org/wp-content/uploads/2014/11/INTERNATIONAL_TREATY_PARIS-MOU-ON-PORT-CONTROL_1982_ENG.pdf. See, for more information, Paris MoU, “A Short History of the Paris MoU on PSC,” <https://www.parismou.org>, accessed November 24, 2022, <https://www.parismou.org/about-us/history>.

⁵⁹ “Memorandum of Understanding on Port State Control in The Black Sea Region, Signed at Istanbul, on April 7, 2000,” accessed November 24, 2022, <http://www.bsmou.org/downloads/reference/Memorandum%20text%20including%2012th%20amendment.pdf>.

- c. the 2004 Riyadh Memorandum of Understanding on Port State Control.⁶⁰
- (iii) In the area of combat against piracy,
 - a. the 2009 Code of Conduct Concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden,⁶¹ and
 - b. the 2013 Code of Conduct Concerning the Repression of Piracy and Armed Robbery against Ships and Illegal Maritime Activity in West and Central Africa.⁶²
- (iv) In the area of navigation, the 2003 Guidelines on Places of Refuge for Ships in Need of Assistance;⁶³
- (v) In the area of fisheries,
 - a. the 1995 FAO Code of Conduct for Responsible Fisheries;⁶⁴
 - b. the 2008 International Guidelines for the Management of Deep-Sea Fisheries in the High Seas;⁶⁵ and
 - c. the 2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem.⁶⁶

⁶⁰ “The Riyadh Memorandum of Understanding on Port State Control in the Gulf Region (Riyadh MOU), Signed on June 1, 2004,” accessed November 24, 2022, <http://extwprlegs1.fao.org/docs/pdf/gcc183657E.pdf>.

⁶¹ *Code of Conduct Concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden*, done in Djibouti, on January 29, 2009, available at https://au.int/sites/default/files/documents/30848-doc-djibouti_code_of_conduct_0.pdf (last accessed on 24 November 2022).

⁶² “Code of Conduct Concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden, Done in Djibouti, on January 29, 2009,” accessed November 24, 2022, https://wwwcdn.imo.org/localresources/en/OurWork/Security/Documents/code_of_conduct%20signed%20from%20ECOWAS%20site.pdf.

⁶³ IMO Assembly resolution A.23/Res.949, *Guidelines on Places of Refuge for Ships in Need of Assistance*, A.23/Res.949 (March 5, 2004), available at [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.949\(23\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.949(23).pdf).

⁶⁴ FAO Conference resolution 4/95, *Code of Conduct for Responsible Fisheries*, 4/95 (October 31, 1995), available at <https://www.fao.org/3/x5585E/x5585e05.htm#Resolution4>.

⁶⁵ FAO, “International Guidelines for the Management of Deep-Sea Fisheries in the High Seas,” September 2008, <https://www.sprfmo.int/assets/Meetings/Meetings-before-2013/Scientific-Working-Group/SWG-06-2008/SPRFMO6-SWG-INF01-FAO-Deepwater-Guidelines-Final-Sep20.pdf>.

⁶⁶ “Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem,” accessed November 24, 2022, https://www.fao.org/fishery/docs/DOCUMENT/reykjavik/y2198t00_dec.pdf.

K. Conclusion

Adequate comprehension of the international law of the sea and its structural features requires that proper attention be paid to the details of international law. Although there has been a fairly significant evolution in the last decades, the model of international law in force continues to be based on the will of States and the pursuit of their interests.

The existence of this model does not prevent States from pursuing common interests based on international cooperation, which is particularly appropriate for spaces such as the maritime ones where permanent occupation is not possible. While the powers exercised by States over their land territories are exclusive and exclusionary, in relation to the seas and oceans there is a constant attempt to achieve harmonization of the powers, uses and activities of the various States and vessels of their nationality.

For centuries, international law of the sea was almost entirely composed of customary law rules. This is easy to understand because they were structured around very simple rules, such as the freedom of the seas and the national non-appropriation of maritime spaces. Today, customary international law remains a particularly important source of international law of the sea, despite the proliferation of international written commitments. This is particularly relevant for those States that are not parties to UNCLOS, such as the United States of America, Türkiye, and Venezuela. Determining what exactly customary international law is in the context of the international law of the sea is a much more arduous task than one might think at first glance. In the course of its activity, the ICJ has had to determine the customary international law character of a large number of unwritten rules of international law.

The replacement of the model of the international law of the sea in force until the end of the Second World War took place as a result of three intergovernmental conferences convened by the United Nations in 1958, 1960 and 1973-1982. The Third United Nations Conference on the Law of the Sea convened over a period of nearly ten years had meeting sessions lasting a total period of thirty-two months. Its work had two rather ambitious objectives. On the one hand, it sought to transform an extraordinarily extensive agenda into a unitary international text, which included practically all matters related to the use of the oceans in

peacetime. And, on the other hand, it wanted to do so in a consensual way in order to create an international legal regime that would receive universal participation and application. UNCLOS was the result of this conference and is currently the international reference legal system for the international law of the sea.

UNCLOS—in force since November 16, 1994—is a legal monument, regardless of any evaluation of its content. It consists of a preamble, a text of three-hundred and twenty articles divided into seventeen parts, nine annexes to the text of UNCLOS, and six annexes to the Final Act. UNCLOS potentially applies to the entire maritime space, whether or not it is under the jurisdiction of States, and it aims to comprehensively regulate the different uses of the maritime space.

After the conclusion of the 1958 Geneva Conventions, most of the general rules of international law of the sea are found in multilateral international conventions. A proper understanding of the international law of the sea requires consideration of framework international conventions, particularly UNCLOS. Three groups of such conventions should be considered in the context of the international law of the sea. *First*, three of the four 1958 Geneva Conventions should be considered because they are the first international treaties codifying the international law of the sea. *Second*, reference must be made to UNCLOS and to its implementing agreements—the 1994 Agreement relating to the implementation of Part XI of the Convention and the 1995 United Nations Fish Stocks Agreement. *Third*, it is important to consider international instruments that regulate the peaceful use of seas and oceans. It should also be borne in mind that numerous multilateral international treaties related to the international law of the sea have emerged in recent decades, for example, in the areas of shipping, fisheries, and the protection and conservation of the marine environment, all of which are part of the progressive development of this branch of international law.

Progressive development of the international law of the sea can also be carried out by international case law, acts of international organizations and soft law.

CHAPTER 2 |

THE CONTRIBUTIONS OF THE INTERNATIONAL COURT OF JUSTICE AND THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA TO THE GOVERNANCE OF THE OCEANS

Vladyslav Lanovoy

A. Introduction

The success of UNCLOS—that celebrates the fortieth anniversary of its adoption at the time of this publication—can largely be attributed to its compulsory system of dispute settlement set out in its Part XV. The very fact that States parties to UNCLOS agreed to resolve peacefully their disputes concerning various matters of ocean governance via this system, which entails both voluntary and compulsory mechanisms, is an extraordinary feat.

This is not to say that Part XV—either in its design or operation—is without reproach. Many of the most pressing issues of ocean governance today, such as the over-exploitation of living and non-living marine resources, ocean acidification, climate change, sea level rise, and biodiversity degradation,¹ lie largely outside the reach of the dispute settlement mechanisms provided for under Part XV. Thus, international courts and tribunals are unlikely to be the first port of call for addressing them. The potential solutions to those issues require first and foremost political will, including in connection with the negotiation and adoption of new legal instruments, and coordinated enforcement measures by States. States have to balance their own geopolitical and economic interests against the needs of humanity as a whole and the benefits that the sustainable use of ocean resources

¹ See various contributions in Seline Trevisanut, Nikolaos Giannopoulos, and Rozemarijn Roland Holst, eds., *Regime Interaction in Ocean Governance: Problems, Theories, and Methods*, Publications on Ocean Development 91 (Leiden; Boston: Brill Nijhoff, 2020).

presents to our planet.² It is also true that international courts and tribunals cannot “[...] anticipate the law before the legislator has laid it down.”³

Nonetheless, the ICJ and ITLOS—through the exercise of their respective contentious and advisory jurisdictions—have clarified a host of rules and principles of ocean governance that provide guidance to States, including on the scope and content of their obligations under UNCLOS. Although the bulk of their work concerns the settlement of bilateral disputes, the judgments the ICJ and ITLOS have rendered thus far constitute a valuable resource on matters of ocean governance. The findings of international courts and tribunals, even in relation to disputes that are essentially bilateral in character, are “[...] bound to have repercussions and to influence the conduct and the perception not only of the parties but also of other [S]tates, and in a variety of ways.”⁴ As noted by the former president of ITLOS, although international courts and tribunals “[...] do not play a forefront role in global governance, they constitute an integral element of this process by providing authoritative guidance on what the law is and by fostering the progressive development of international law.”⁵ Moreover, the consistency with which different dispute settlement bodies have interpreted and applied the Convention has contributed to reinforcing its authority. This “[...] coordinated interpretation of UNCLOS provisions and the relevant rules of international law, in order to ensure systemic integration between the two”⁶ is a welcome phenomenon in the interests of the continuous

² See, for a critical overview of the relationship between the broad concept of ocean governance and the law of the sea, Yoshinobu Takei, “A Sketch of the Concept of Ocean Governance and Its Relationship with the Law of the Sea,” in *What’s Wrong with International Law? Liber Amicorum A.H.A. Soons*, ed. Cedric Ryngaert et al., Nova et Vetera Iuris Gentium (Leiden; Boston: Brill Nijhoff, 2015).

³ *Fisheries Jurisdiction (United Kingdom v. Iceland)*, Merits, Judgment, I.C.J. Reports 1974, p. 24, para. 53. See also, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, I.C.J. Reports 1996, p. 237, para. 18.

⁴ Vaughan Lowe QC and Antonios Tzanakopoulos, “The Development of the Law of the Sea by the International Court of Justice,” in *The Development of International Law by the International Court of Justice*, ed. Christian J. Tams and James Sloan (Oxford: Oxford University Press, 2014), 178.

⁵ Vladimir Golitsyn, “The Role of International Tribunal for the Law of the Sea (ITLOS) in Global Ocean Governance,” in *The IMLI Treatise on Global Ocean Governance, Volume I: UN and Global Ocean Governance*, ed. David. J. Attard, David M. Ong, and Dino Kritsiotis (Oxford: Oxford University Press, 2018), 104.

⁶ Roberto Virzo, “The ‘General Rule of Interpretation’ in the International Jurisprudence Relating to the United Nations Convention on the Law of the Sea,” in *Interpretations of the United Nations Convention on the Law of the Sea by International Courts and Tribunals*, ed. Angela Del Vecchio and Roberto Virzo (Cham: Springer, 2019), 27–33.

adaptability of the Convention to new challenges as a relevant framework of ocean governance.

Likewise, this consistency has dispelled earlier myths and sometimes exaggerated fears of fragmentation.⁷

This chapter argues that the ICJ and ITLOS have made a significant contribution to the regime of ocean governance.⁸ It will only highlight some of the key areas of substantive law in which they have provided authoritative interpretations and clarified the content of the often broadly worded provisions of UNCLOS. It is outside the scope of this chapter to address the equally important contributions of the ICJ and ITLOS to consolidating the procedural aspects of dispute settlement under Part XV or to entrenching the institutional architecture of the Convention.⁹

The chapter proceeds as follows. Section B briefly situates the relative contributions of the ICJ and ITLOS to ocean governance by reference to the system of dispute settlement under UNCLOS and beyond, as well as the parameters that may affect the analysis. Section C examines some of the key contributions of the ICJ and ITLOS to clarifying certain substantive aspects of ocean governance. Section D concludes with considerations of what the future may hold for the continued role of the ICJ and ITLOS in matters of ocean governance.

⁷ See, for example, Hugo Caminos, “The Growth of Specialized International Tribunals and the Fears of Fragmentation of International Law,” in *International Courts and the Development of International Law: Essays in Honour of Tullio Treves*, ed. Nerina Boschiero et al. (The Hague: Asser Press (Springer), 2013), 55–64, <https://link.springer.com/content/pdf/bfm:978-90-6704-894-1/1>; Jonathan I. Charney, “Is International Law Threatened by Multiple International Tribunals?” The Hague Academy Collected Courses Online, 2006; Shigeru Oda, “The International Court of Justice Viewed from the Bench (1976–1993)” (Koninklijke Brill NV), accessed December 13, 2022, https://referenceworks.brillonline.com/entries/the-hague-academy-collected-courses/*A9789041100870_01. See also, Joan E. Donoghue, “Speech by H.E. Judge Joan E. Donoghue, President of the International Court of Justice” (High-Level Commemorative Plenary Meeting of the General Assembly to Mark the 40th Anniversary of the Adoption of the United Nations Convention on the Law of the Sea, New York, April 29, 2022), <https://www.icj-cij.org/public/files/press-releases/0/000-20220429-STA-01-00-EN.pdf>.

⁸ See, for more detailed analysis of the multiple contributions of international courts and tribunals to the law of the sea, Lowe QC and Tzanakopoulos, “The Development of the Law of the Sea by the International Court of Justice”; Peter Tomka, “The Contribution of the International Court of Justice to the Law of the Sea,” in *The IMLI Manual on International Maritime Law*, ed. David Joseph Attard et al. (Oxford, United Kingdom: Oxford University Press, 2014), 618–42; ITLOS, ed., *The Contribution of the International Tribunal for the Law of the Sea to the Rule of Law: 1996–2016* (Contribution of the Tribunal to the Rule of Law (Conference), Leiden: Brill Nijhoff, 2016).

⁹ See, Vladyslav Lanovoy, “Dispute Settlement and Ocean Governance,” in *Research Handbook on Ocean Governance Law*, ed. Simone Borg, Felicity G. Attard, and Patricia M. Vella de Fremaux (Cheltenham: Edward Elgar Publishing, 2022).

B. The Tale of Two Judicial Bodies and the Context for Assessing Their Contributions to Ocean Governance

This section briefly examines and compares the output of the ICJ and ITLOS in relation to ocean governance. At the outset, that output needs to be placed in its context, namely *vis-à-vis* the availability of other dispute settlement mechanisms provided for in Article 287 of Part XV, including arbitral tribunals constituted under Annex VII of UNCLOS that have settled most disputes under UNCLOS since its entry into force. Moreover, many disputes concerning the interpretation and application of UNCLOS are settled by non-adjudicatory means of dispute settlement, most often negotiation and less often other forms of dispute settlement such as voluntary conciliation. *Finally*, the contribution and impact of the ICJ and ITLOS can only be fully understood when the limits of their respective jurisdictions are considered.

In the case of the ICJ, its contribution to ocean governance goes way beyond the realm of the Convention's dispute settlement framework. Long before the adoption and entry into force of the Convention, in parallel with the process of codification of the law of the sea that began at the International Law Commission in the early 1950s, the ICJ consolidated many of the rules and principles governing ocean governance that we know today. These include rules and principles concerning maritime delimitation, the legal regime applicable to certain maritime zones such as the EEZ, the rights and duties of coastal States, the regime of innocent passage, and the use of international straits for navigation.¹⁰ States still resort to the ICJ on a regular basis to resolve disputes concerning maritime delimitation, even if ITLOS is a more specialized and equally well-equipped forum for dealing with such disputes. These cases have been brought before the ICJ either on the basis of (i) the compromissory clauses in treaties other than UNCLOS; (ii) a special agreement between the parties to the dispute; or (iii) matching optional clause declarations under the ICJ Statute. In fact, the ICJ is yet to hear a case based on Part XV of UNCLOS. This is because only a fraction of the States Parties to UNCLOS have, in their

¹⁰ *Continental Shelf (Tunisia/Libyan Arab Jamahiriya)*, Judgment, I.C.J. Reports 1985, p. 38, para. 24; *Continental Shelf (Libyan Arab Jamahiriya/Malta)*, Application to Intervene, Judgment, I.C.J. Reports 1984, p. 29–30, para. 27; *Corfu Channel (United Kingdom v. Albania)*, Merits, Judgment, I.C.J. Reports 1949, p. 28.

optional declarations under Article 287 of UNCLOS, selected the ICJ as the forum for disputes to which they may be a party—only twenty-eight States have indicated the ICJ as one of the two or more possible fora, while only six States chose exclusively the ICJ.¹¹ Nonetheless, the ICJ has had the opportunity to clarify certain aspects of the interaction between the system of its optional clause declaration under the ICJ Statute and the provisions of Part XV of UNCLOS.¹² In addition, the ICJ has had the opportunity to make pronouncements on various rules and principles of UNCLOS where the latter formed part of the applicable law in cases brought before it on jurisdictional bases other than Part XV of UNCLOS.¹³

In contrast, ITLOS was founded to deal exclusively with disputes concerning the interpretation and application of UNCLOS, and hence all its cases are brought in the framework of Part XV. However, because Part XV, Article 287 of UNCLOS provides for a range of dispute settlement mechanisms,¹⁴ with Annex VII arbitration as the default mechanism in the absence of a different choice by the relevant parties, there has been a relative paucity of cases before ITLOS. Since the entry into force of UNCLOS, fifteen cases have proceeded to Annex VII arbitration, while twenty-nine cases were brought before ITLOS. If a similar comparison is made between arbitral tribunals and the ICJ, “[a]rbitral tribunals have rendered decisions in roughly half as many instances as the ICJ in cases relating to the (public international) law of the sea since 1945.”¹⁵ However, a quantitative comparison does not show the full picture. The great majority of the twenty-nine cases before ITLOS concerned requests for provisional measures while an arbitral tribunal constituted under Annex VII of UNCLOS was being constituted, or in the context of a request for the prompt release of vessels and crews.¹⁶ It follows that the limited compulsory jurisdiction of ITLOS

¹¹ United Nations, “Settlement of Disputes Mechanism,” <https://www.un.org>, accessed December 14, 2022, https://www.un.org/depts/los/settlement_of_disputes/choice_procedure.htm.

¹² *Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, Preliminary Objections, Judgment, I.C.J. Reports 2017, pp. 47–50, paras. 125–133.

¹³ See, for example, *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, I.C.J. Reports 2007, p. 659; *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, Judgment, I.C.J. Reports 2009, p. 61.

¹⁴ See, Article 287 of UNCLOS.

¹⁵ Lowe QC and Tzanakopoulos, “The Development of the Law of the Sea by the International Court of Justice,” 180.

¹⁶ See, Articles 290 and 292 of UNCLOS.

in respect of these two procedures has in and of itself accounted for most of its activity since its establishment. Moreover, even though ITLOS has rendered only six judgments on the merits, many of its decisions under those procedures touch upon important aspects of ocean governance, including environmental protection and the prevention of harm to marine living resources, because these issues naturally arise in the context of requests for provisional measures.¹⁷ Furthermore, its two advisory opinions, rendered in 2011 and 2015, are properly characterized as foundational decisions because of the guidance they provide on obligations and responsibility of States parties to UNCLOS in connection with the exploration for and exploitation of minerals in the Area and those in connection with the IUU fishing in the EEZ. These topics are of concern to all States, but mainly to those with large EEZ—including Portugal—and those interested in ensuring the sustainable use of the marine living resources.

When considering the contributions of the ICJ and ITLOS to ocean governance, it is important to keep in mind that the jurisdiction of the dispute settlement mechanisms provided for in the Convention¹⁸ is considerably limited in terms of its subject matter.¹⁹ These provisions, which are among the most complex to be found in the Convention and certainly no model of treaty drafting, contain important automatic limitations and optional exclusions. These limitations and exclusions pertain to core issues of ocean governance, such as disputes concerning fisheries, marine scientific research, or maritime boundary delimitation.²⁰ In addition, these mechanisms only have jurisdiction over disputes concerning the interpretation and application of the Convention or other instruments related to the purposes of UNCLOS.²¹ Thus, they cannot cover aspects of the dispute that may go beyond matters expressly stipulated in the

¹⁷ See, for example, *Southern Bluefin Tuna (New Zealand v. Japan; Australia v. Japan)*, Provisional Measures, Order of 27 August 1999, ITLOS Reports 1999, pp. 295–96, paras. 70–80; Nilüfer Oral, “The Contribution of ITLOS to the Development of International Law for Protection of the Marine Environment and Conservation of Living Resources,” in *Case-Law and the Development of International Law*, ed. Patrícia Galvão Teles and Manuel Almeida Ribeiro (Brill | Nijhoff, 2021), 180–96, <https://brill.com/view/book/edcoll/9789004467668/BP000019.xml>.

¹⁸ See, Article 287 of UNCLOS.

¹⁹ See, Articles 297 and 298 of UNCLOS.

²⁰ See, for an updated analysis on the application of these limitations and exclusions in the practice of international courts and tribunals, for example, Bjørn Kunoy, “The Scope of Compulsory Jurisdiction and Exceptions Thereto under the *United Nations Convention on the Law of the Sea*,” *Canadian Yearbook of International Law/Annuaire Canadien de Droit International* 58 (November 2021): 78–141.

²¹ See, Article 288 of UNCLOS.

Convention.²² The fact that many disputes involve not only law of the sea claims but also other connected claims, such as those related to territorial sovereignty that are outside the jurisdiction of dispute settlement mechanisms under Part XV of UNCLOS, may explain why States have frequently resorted to the ICJ on other jurisdictional bases.

Thus, the dispute settlement system under UNCLOS has important limitations, despite its compulsory character, due to various automatic and optional exclusions based on the subject matter of disputes that arise. It is important to have these constraints in mind when evaluating the output of different international courts and tribunals on the law of the sea in general, and on key ocean governance matters in particular.

C. Contributions of the ICJ and ITLOS to Ocean Governance

Notwithstanding the above caveats, the ICJ and ITLOS have made significant contributions to matters of ocean governance. These contributions have been made in relation to substantive, procedural, and institutional dimensions of ocean governance. This chapter will focus on their most salient contributions to certain substantive areas of the law of the sea and ocean governance.

There are two substantive areas of ocean governance where the contribution of the ICJ and ITLOS, along with arbitral tribunals, has been most significant. *First*, they have shaped the law applicable to the delimitation of maritime spaces by developing and applying a predictable, consistent, and reliable methodology.²³ This has led to the peaceful allocation of sovereign rights between States and the effective management of maritime zones and their resources. *Second*, the ICJ and ITLOS have interpreted several broadly worded provisions in UNCLOS that are directed to the exploitation of marine resources in maritime spaces

²² See, for the discussion of the examples of cases where international courts and tribunals have had to navigate on the thin red line between the limits of their jurisdiction and the need to pronounce on certain matters as part of the exercise of their incidental jurisdiction, for example, Kate Parlett, “Beyond the Four Corners of the Convention: Expanding the Scope of Jurisdiction of Law of the Sea Tribunals,” *Ocean Development & International Law* 48, No. 3–4 (October 2, 2017): 284–99; Peter Tzeng, “The Implicated Issue Problem: Indispensable Issues and Incidental Jurisdiction,” *New York University Journal of International Law & Politics* 50 (2018): 447–507; Peter Tzeng, “Supplemental Jurisdiction under UNCLOS,” *Houston Journal of International Law* 38, No. 2 (2016): 499–575.

²³ See, for a recent and detailed assessment of maritime delimitation as a judge-shaped law, Massimo Lando, *Maritime Delimitation as a Judicial Process*, 1st ed. (Cambridge: Cambridge University Press, 2019), <https://www.cambridge.org/core/product/identifier/9781108608893/type/book>.

within and beyond national jurisdiction, including the deep seabed or the Area. In so doing, the ICJ and ITLOS have evidently sought to strike an appropriate balance between the rights and obligations of coastal States and other States interested in access to the sea resources.

1. Delimitation

UNCLOS contains three provisions that address the delimitation of maritime spaces. Article 15 provides that, failing agreement between the parties, delimitation in the territorial sea should be based on the median line (*i.e.*, equidistance), subject to any special circumstances, whereas Articles 74 and 83 specify that delimitation in the EEZ and of the continental shelf should be effected by agreement of the parties or, where there is no agreement, by one of the means of dispute settlement under Part XV. While the Convention expressly states that the objective of delimitation is to achieve an equitable solution, it is the decisions of international courts and tribunals, and the ICJ and ITLOS in particular, that have developed the methodology that is to be followed in achieving that objective. Hesitant early jurisprudence on delimitation preceded the adoption of UNCLOS, as did long intellectual debates on the role of equity, but since the adoption of UNCLOS, international courts and tribunals, including the ICJ and ITLOS, have settled on a clear three-stage methodology that is applied as a matter of course.²⁴ This methodology was first set out in the 2009 *Black Sea* judgment rendered by the ICJ.²⁵ Incidentally, this was the only judgment in the history of the ICJ where no individual opinion was appended, including by two *ad hoc* judges, demonstrating the will of the bench to set the record straight for the future delimitations effected by it and its peers.²⁶

Thus, the methodology for delimitation by equidistance/special circumstances in the territorial sea and by equidistance/relevant circumstances in the EEZ and in the continental shelf is well-established. Only in exceptional circumstances

²⁴ See, for a thorough analysis of the evolution of jurisprudence in respect of maritime delimitation, for example, Yoshifumi Tanaka, *Predictability and Flexibility in the Law of Maritime Delimitation*, 2nd edition, paperback edition, Studies in International Law (Oxford: Hart, 2021).

²⁵ *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, Judgment, pp. 101–103, paras. 116–122.

²⁶ See, for example, for subsequent application of the methodology by ITLOS and arbitral tribunals constituted under Annex VII of UNCLOS, *Delimitation of the Maritime Boundary in the Bay of Bengal (Bangladesh/Myanmar)*, Judgment, ITLOS Reports 2012, pp. 64–68, paras. 225–240; *The Bay of Bengal Maritime Boundary Arbitration between the People's Republic of Bangladesh and the Republic of India*, Award of July 7, 2014, in Reports of International Arbitral Awards, Vol. XXXII, pp. 104–106, paras. 336–346.

international courts and tribunals, including the ICJ and ITLOS, have departed from it. These departures have been justified by very particular coastal configurations or other considerations, such as the existence of an earlier agreement on delimitation in respect of segments of the maritime spaces to be delimited.²⁷

From the perspective of ocean governance, four aspects of the jurisprudence of the ICJ and ITLOS on delimitation are of particular interest because the law is not definitively settled. *First*, questions remain as to what may constitute *a special circumstance* in a delimitation of the territorial sea and an EEZ or continental shelf. For example, while traditional fishing rights have long been accepted as a special circumstance in the delimitation of the territorial sea, economic activities relating to the uses of the sea resources are generally not considered to be relevant circumstances that would warrant the adjustment of a provisional equidistance line in the delimitation of an EEZ or continental shelf.²⁸ While States continue to invoke non-geographic circumstances, both the ICJ and ITLOS have consistently found that they have no impact on the delimitation line.²⁹ Similarly, existing jurisprudence does not always do justice to the legal rights and interests of third parties in the context of maritime delimitation, an aspect that may require further fine-tuning in practice.³⁰

Second, thorny questions remain concerning the delimitation of the extended continental shelf. These questions include the existence of so-called *grey zones*,

²⁷ *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, p. 741 ff, paras. 272, 277 and 280–81; *Maritime Dispute (Peru v. Chile)*, Judgment, I.C.J. Reports 2014, paras. 24 ff, 198(3).

²⁸ *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, Judgment, pp. 125–26, para. 198; *Arbitration between Barbados and the Republic of Trinidad and Tobago Relating to the Delimitation of the Exclusive Economic Zone and the Continental Shelf Between Them*, Decision of April 11, 2006, in Reports of International Arbitral Awards, Vol. XXVII, p. 214, para. 241. See, however, *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*, Judgment, I.C.J. Reports 1984, p. 342, para. 237 (accepting in principle that such factors may be considered but only where the delimitation line would be “[...] likely to entail catastrophic repercussions for the livelihood and economic well-being of the population of the countries concerned.”) See, for the only cases where economic factors—fisheries—were considered as a relevant circumstance calling for an adjustment of the provisional equidistance line, *Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway)*, Judgment, I.C.J. Reports 1993, p. 72, para. 76.

²⁹ See most recently, *Delimitation of the Maritime Boundary in the Atlantic Ocean (Ghana/Côte d’Ivoire)*, Judgment, ITLOS Reports 2017, p. 124, paras. 437 ff; *Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, Judgment, I.C.J. Reports 2021, p. 262, paras. 150–153.

³⁰ See, for a sustained criticism of the jurisprudence in this respect, Lorenzo Palestini, *La Protection Des Intérêts Juridiques de l’État Tiers Dans Le Procès de Délimitation Maritime*, Collection de Droit International 90 (Bruxelles: Emile Bruylant, 2020).

where there is an adjusted equidistance line—one State exercises sovereign rights over the EEZ and the other State exercises sovereign rights over its extended continental shelf.³¹ To perform these delimitations, international courts and tribunals, including the ICJ and ITLOS, may have to deal with complex scientific considerations, such as the relevant geology. Moreover, many of these questions will arise in cases involving non-parties to UNCLOS, which are thus not subject to the recommendations of the CLCS.³²

Third, courts and tribunals are increasingly confronted with requests for delimitation of areas where the coasts are morphologically unstable and have been or will be affected by climate change. In such cases, they have consistently held that their task is necessarily limited to delimitation on the basis of the geographic configuration at the time of their decision. In so doing, they have disregarded possible changes to that configuration due to processes such as accretion or avulsion, which may even lead to the disappearance of the relevant basepoints.³³ The ICJ has also accepted creative solutions to practical difficulties of this nature, such as by fixing the coordinates of the point of departure seaward from the coast and linking that point to the existing terminus of the territorial boundary by a mobile line.³⁴

Fourth, courts and tribunals have clarified the content and scope of application of the obligations applicable in undelimited maritime spaces.³⁵ For example, in *Delimitation of the Maritime Boundary (Guyana v. Suriname)*, the arbitral tribunal found that both parties to the dispute by their respective conduct had jeopardized the reaching of a final agreement on the delimitation of

³¹ *Delimitation of the Maritime Boundary in the Bay of Bengal (Bangladesh/Myanmar)*, Judgment, pp. 119–121, paras. 463–476.

³² Notably, in the case currently pending before the ICJ on the merits, *Question of the Delimitation of the Continental Shelf between Nicaragua and Colombia beyond 200 Nautical Miles from the Nicaraguan Coast (Nicaragua v. Colombia)*, Preliminary Objections, Judgment, I.C.J. Reports 2016.

³³ *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v. Nicaragua)* and *Land Boundary in the Northern Part of Isla Portillos (Costa Rica v. Nicaragua)*, Judgment, I.C.J. Reports 2018, p. 173, para. 86; *Delimitation of the Maritime Boundary in the Atlantic Ocean (Ghana/Côte d'Ivoire)*, Judgment, p. 95, para. 318; *The Bay of Bengal Maritime Boundary Arbitration between the People's Republic of Bangladesh and the Republic of India*, Award of July 7, 2014, pp. 73 ff, paras. 214, 346 and 399.

³⁴ See, for example, *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v. Nicaragua)* and *Land Boundary in the Northern Part of Isla Portillos (Costa Rica v. Nicaragua)*, p. 173, para. 86; *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, p. 755, para. 307.

³⁵ See, for example, Articles 74(3) and 83(3) of UNCLOS.

their maritime boundary, thus breaching their obligations “[...] not to jeopardize or hamper the reaching of the final agreement [on delimitation].”³⁶ In so doing, the arbitral tribunal confirmed that the relevant test for a breach of Articles 74(3) and 83(3) of UNCLOS is whether the conduct in question is likely to result in permanent physical changes to the undelimited area.³⁷ The ICJ has most recently referred approvingly to the same test in its *Somalia v. Kenya* judgment on the merits.³⁸ However, courts and tribunals have not addressed whether international responsibility for conduct in undelimited areas can be engaged in circumstances other than those addressed by those provisions prior to the final agreement on the delimitation. Of note, the effect of these provisions may also have recently been attenuated by the Special Chamber of ITLOS in *Ghana/Côte d’Ivoire*, which held that the existence of a good faith claim by a State concerning an undelimited maritime area prior to the delivery of a judgment on its delimitation precludes the finding of responsibility on the part of that State.³⁹

2. Ocean Resources

Another area where the ICJ and ITLOS have made significant contributions to ocean governance concerns the use of resources in maritime spaces within and beyond national jurisdiction. The jurisprudence they have produced has largely preserved the delicate balance that the Convention strikes in terms of the rights and obligations of coastal States on the one hand and States that may have an interest in exploiting the resources located in the EEZ of coastal States on the other hand.

In particular, this jurisprudence has clarified the legal rules that govern EEZs in Part V of the Convention, putting an end to a host of real and potential conflicts over natural resources.⁴⁰ This regime, founded upon the fundamental notion of sovereign rights, represents a successful and pragmatic compromise

³⁶ *Delimitation of the Maritime Boundary between Guyana and Suriname*, Award of September 17, 2007, in Reports of International Arbitral Awards, Vol. XXX, p. 139, para. 488.

³⁷ *Delimitation of the Maritime Boundary between Guyana and Suriname*, pp. 132–33, paras. 466–470.

³⁸ *Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, Judgment, p. 282, para. 207.

³⁹ *Delimitation of the Maritime Boundary in the Atlantic Ocean (Ghana/Côte d’Ivoire)*, Judgment, p. 159, para. 592. See also, *Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, p. 282, para. 207.

⁴⁰ See, for a recent recognition of the customary law character of the rules contained in Part V of UNCLOS, *Alleged Violations of Sovereign Rights and Maritime Spaces in the Caribbean Sea (Nicaragua v. Colombia)*, ICJ Judgment of April 21, 2022, p. 74, para. 215 ff, available at <https://www.icj-cij.org/public/files/case-related/155/155-20220421-JUD-01-00-EN.pdf> (accessed January 14, 2023).

to “[...] some of the fundamental interests of industrialized States, as well as coastal States and maritime powers.”⁴¹ For example, in one of the most recent decisions rendered by the ICJ, it helpfully confirmed the customary character of Articles 56, 58, 61, 62 and 73 of UNCLOS, and discussed their content and scope of application.⁴² In its jurisprudence, ITLOS has also provided helpful guidance on the scope of application of certain provisions of Part V of UNCLOS. For example, ITLOS has clarified that bunkering⁴³ of foreign vessels in the EEZ—if directly connected with fishing—is an activity that can be regulated by the coastal State. The competence of the coastal State in regulating such an activity “[...] derives from [its] sovereign rights [...] to explore, exploit, conserve, and manage natural resources.”⁴⁴ By contrast, the coastal State “[...] does not have such competence with regard to other bunkering activities, unless otherwise determined in accordance with the Convention.”⁴⁵ The regulation of bunkering not only by the flag State but also by the coastal State—when and if conducted in the EEZ of the latter—has important knock-on effects on ensuring a greater level of protection to the marine environment and its resources.

In addition, in their jurisprudence, international courts and tribunals, including the ICJ and ITLOS, have addressed certain key principles of international environmental law as applicable to the oceans, including the precautionary principle and the obligations that require States to exercise due diligence. They have done so through the so-called rules of reference in UNCLOS. For example, principles of international environmental law have been addressed in Part XII of the Convention, which concerns marine environmental protection and refers to *generally accepted international rules and standards*.⁴⁶

⁴¹ Umberto Leanza, Maria Cristina Caracciolo, and Norman A. Martínez Gutiérrez, eds., “The Exclusive Economic Zone,” in *The IMLI Manual on International Maritime Law* (Oxford: Oxford University Press, 2014), 177–216, https://eclass.unipi.gr/modules/document/file.php/EBI196/TheLawOfTheSea.EEZ.OPIL_The_IMLI_Manual_on_International_Maritime_Law_7_The_Exclusive_Economic_Zone.pdf.

⁴² *Alleged Violations of Sovereign Rights and Maritime Spaces in the Caribbean Sea (Nicaragua v. Colombia)*, ICJ Judgment of April 21, 2022, pp. 32–34, paras. 57–63.

⁴³ Also known as *re-fueling*.

⁴⁴ *M/V “Virginia G” (Panama/Guinea-Bissau)*, Judgment, ITLOS Reports 2014, p. 70, para. 222.

⁴⁵ *M/V “Virginia G” (Panama/Guinea-Bissau)*, p. 70, para. 223.

⁴⁶ See, for example, James Harrison, *Making the Law of the Sea: A Study in the Development of International Law*, 1st ed. (Cambridge: Cambridge University Press, 2011), 165–79; Bernard H. Oxman, “The Duty to Respect Generally Accepted International Rules and Standard,” *NYU Journal of International Law and Politics* 24 (1991): 121–39.

Likewise, ITLOS has consistently emphasized that States must comply with their obligations derived from general international law—part of the applicable law under UNCLOS⁴⁷—and may influence the interpretation of the relevant provisions in the Convention.⁴⁸

As far as sustainable uses of ocean resources are concerned, the two advisory opinions rendered by the ITLOS Seabed Disputes Chamber and ITLOS in its full composition have made by far the most significant contributions.⁴⁹ In the 2011 *Advisory Opinion on the Area*, the ITLOS Seabed Disputes Chamber provided a set of helpful guidelines for States sponsoring activities in the Area. To begin with, it clarified the scope of the phrase *activities in the Area*, as including the recovery of minerals from the seabed, their lifting to the surface of the water, and other associated activities. However, it excluded *processing*, *i.e.*, extracting metals from the minerals—a process that is usually conducted on land.⁵⁰ In addition, the ITLOS Seabed Disputes Chamber made an important finding concerning the scope of responsibility of sponsoring States, namely that they must ensure that their activities—or the activities of contractors that they have sponsored—do not cause damage to the marine environment in the Area. This is an obligation of conduct or best efforts that requires sponsoring States to exert due diligence to a degree that may change over time depending on the state of the scientific and technological knowledge and the risks involved in the specific activity in question.⁵¹ The ITLOS Seabed Disputes Chamber also stressed that States have several *direct obligations* in respect of the activities in the Area, among them the obligations to apply the precautionary approach and to conduct an EIA.⁵² Further, it stressed that States are required to establish laws and regulations and take administrative measures within their legal systems to ensure that sponsored contractors act in compliance with the obligations incumbent upon the State, including by providing for the necessary enforcement mechanisms.⁵³

⁴⁷ See, Article 293 of UNCLOS.

⁴⁸ *M/V “Louisa” (Saint Vincent and the Grenadines v. Kingdom of Spain)*, Judgment, ITLOS Reports 2013, p. 46, para. 155; *M/V “SAIGA” (No. 2) (Saint Vincent and the Grenadines v. Guinea)*, Judgment, ITLOS Reports 1999, pp. 61–62, para. 155.

⁴⁹ Golitsyn, “The Role of International Tribunal for the Law of the Sea (ITLOS) in Global Ocean Governance,” 108.

⁵⁰ *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion, February 1, 2011, ITLOS Reports 2011, p. 37, paras. 94–95.

⁵¹ *Responsibilities and Obligations of States with Respect to Activities in the Area*, p. 43, para. 117.

⁵² *Responsibilities and Obligations of States with Respect to Activities in the Area*, pp. 73–78, para. 242.

⁵³ *Responsibilities and Obligations of States with Respect to Activities in the Area*, p. 68, para. 218.

The second advisory opinion that is particularly notable for its contribution to the governance of ocean resources is *Advisory Opinion on Fisheries*.⁵⁴ In this case, the full composition of ITLOS examined the rights and obligations of flag States and coastal States in respect of IUU fishing activities and built upon some of the considerations that had been addressed in *Responsibilities and Obligations of States with Respect to Activities in the Area*. While recognizing that “the primary responsibility for taking necessary measures to prevent, deter and eliminate IUU fishing rests with the coastal State,”⁵⁵ ITLOS elaborated on the corresponding obligations of flag States.⁵⁶ It emphasized that flag States have the responsibility to ensure compliance by vessels flying their flag with the laws and regulations concerning conservation measures adopted by the coastal State in respect of its EEZ and that the flag State shall take the necessary measures, including effective exercise of its jurisdiction over the vessels flying its flag.⁵⁷ Importantly, the flag State must include adequate enforcement mechanisms in the applicable laws and regulations to the vessels flying its flag, even though the obligation of flag States is that of due diligence—an obligation of conduct rather than of result. Therefore, such mechanisms must be sufficiently robust to deter violations and deprive the vessels conducting IUU fishing of any benefits they would otherwise derive from such activities.⁵⁸ Finally, ITLOS also discussed a number of specific obligations that coastal States have concerning the management of shared stocks and stocks of common interest.⁵⁹ In so doing, it stressed that the ultimate goal of such management was to “[...] conserve and develop [such fish stocks] as a viable and sustainable resource.”⁶⁰

These two advisory opinions have had a significant influence on the progressive development of the law of the sea and ocean governance, in

⁵⁴ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, *Advisory Opinion*, April 2, 2015, ITLOS Reports 2015, p. 4.

⁵⁵ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, p. 33, paras. 105–106.

⁵⁶ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, p. 34, para. 110.

⁵⁷ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, pp. 38–39, paras. 125–127. See, Articles 58(3) and 62(4) of UNCLOS.

⁵⁸ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, pp. 39–42, paras. 127–138.

⁵⁹ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, pp. 58–59, para. 207.

⁶⁰ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, p. 55, paras. 190–191.

addition to clarifying the character and scope of obligations of States involved in the exploitation of resources within and beyond national jurisdiction. *First*, in general, these advisory opinions have assigned a significant amount of content to the open-textured provisions in the Convention. *Second*, more specifically, the ITLOS Seabed Disputes Chamber and ITLOS held that States must abide by the precautionary approach in their activities and the measures they are expected to take whenever scientific knowledge and certainty may be lacking about potential environmental risks.⁶¹ *Third*, they used the opportunity to emphasize that the protection of the oceans is the common responsibility of all States. Thus, for instance, the *Advisory Opinion on the Area* dispelled the myth of the “[...] common but differentiated responsibilities [...]” in respect of resources that constitute the common heritage of mankind, emphasizing that no preferential treatment shall be accorded to developing States that may sponsor the activities in the Area. As noted by the ITLOS Seabed Disputes Chamber, “[...] the general provisions concerning the responsibilities and liability of the sponsoring State apply equally to all sponsoring States, whether developing or developed.”⁶² This equality of treatment is indispensable to combat the proliferation of the so-called sponsoring States of convenience and to more effectively protect the Area and its resources as a common heritage of mankind.⁶³

More generally, the ICJ and ITLOS have provided authoritative interpretations on many other fundamental concepts of the law of the sea, which have a direct impact on the peaceful uses and governance of oceans. For instance, their jurisprudence has been instrumental in understanding (i) the concept of the continental shelf under Article 76 of UNCLOS;⁶⁴ (ii) the distinction between various maritime features under UNCLOS and the entitlements they confer, including rocks, low-tide elevations and islands;⁶⁵ (iii) the validity and

⁶¹ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)*, p. 59, para. 208.

⁶² *Responsibilities and Obligations of States with Respect to Activities in the Area*, *Advisory Opinion*, pp. 53–54, para. 158.

⁶³ *Responsibilities and Obligations of States with Respect to Activities in the Area*, p. 54, para. 159.

⁶⁴ See, for example, *Territorial and Maritime Dispute (Nicaragua v. Colombia)*, *Judgment*, I.C.J. Reports 2012, p. 666, para. 118; *Delimitation of the Maritime Boundary in the Bay of Bengal (Bangladesh/Myanmar)*, *Judgment*, pp. 112–114, paras. 428–438.

⁶⁵ *Territorial and Maritime Dispute (Nicaragua v. Colombia)*, pp. 674 and 692–693, paras. 139 and 182 respectively; *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, *Merits, Judgment*, I.C.J. Reports 2001, p. 97 ff, paras. 185, 195, 201.

circumstances under which different types of baselines under Articles 5 and 7 of UNCLOS can be employed;⁶⁶ or (iv) the requirement of a *genuine link* under Article 91 of the Convention.⁶⁷ They have tempered attempts to manipulate the ordinary meaning of some of these concepts through technological developments in furtherance of strategic interests, thereby reinforcing the fundamental principle of the peaceful use of the oceans. Moreover, the ICJ and ITLOS have contributed to the universal character of those rules—including their potential application to a relatively small but non-negligible number of coastal States that are not yet parties to UNCLOS, *e.g.*, the US, Venezuela, Türkiye, Israel, Iran, Colombia, and Peru—by recognizing the customary law character of many of these and other fundamental rules governing the oceans. The ICJ and ITLOS have thus clearly embraced and reinforced the dominant feature of UNCLOS as an instrument that has broadly codified customary law of the sea, even if it obviously contains certain procedural aspects and governance structures that remain an exclusive province of treaty law.

D. Conclusion

This chapter has examined some of the most significant contributions that the ICJ and ITLOS have made to the substantive rules of ocean governance, including those set out in UNCLOS. These contributions pertain primarily to the legal framework on (i) the delimitation of maritime spaces, (ii) the protection and preservation of the marine environment; (iii) the conservation and management of marine living resources; and (iv) the clarification of many of the fundamental concepts of the law of the sea and the scope of the rights, duties, and freedoms enjoyed by States. The jurisprudence of the ICJ and ITLOS has demonstrated a proclivity for consistency in their respective interpretation and application of substantive aspects of ocean governance—a positive sign for legal certainty and predictability for its end-users. At the same time, the well-being of the oceans and a sustainable use of its resources are constantly being challenged by the

⁶⁶ *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, pp. 103–104, paras. 212–215; *Alleged Violations of Sovereign Rights and Maritime Spaces in the Caribbean Sea (Nicaragua v. Colombia)*, ICJ Judgment of April 21, 2022, pp. 81–88, paras. 234–259.

⁶⁷ See, for example, *M/V “Virginia G” (Panama/Guinea-Bissau)*, Judgment, pp. 43–45, paras. 107–113; *M/V “SAIGA” (No. 2) (Saint Vincent and the Grenadines v. Guinea)*, Judgment, p. 42, para. 83.

practices of States and other stakeholders, including overfishing, IUU fishing, over-exploitation of mineral resources on the continental shelf, environmental pollution, ocean acidification, sea-level rise, the increasing number of claims by coastal States to the extended continental shelf. International courts and tribunals are not necessarily well placed to provide comprehensive answers to these problems as their powers are fundamentally limited by States' consent. Indeed, the limited number and nature of disputes brought before international courts and tribunals thus far demonstrates that the use of courts and tribunals remains somewhat sporadic and can only address a fraction of the issues that go to the core of effective ocean governance.

Nevertheless, certain of the contributions of the ICJ and ITLOS to date have been particularly valuable. In this regard, it is hoped that, following its significant finding in 2015 that it has general advisory jurisdiction over matters relating to the purposes of UNCLOS,⁶⁸ ITLOS may well be solicited more frequently to provide advisory opinions on issues of interest to the regime of ocean governance.⁶⁹ This would be a very positive development because regional organizations with direct involvement in matters of ocean governance should be able to request advisory opinions on any legal question relating to UNCLOS or any other legal instrument that is linked to its object and purpose.

⁶⁸ *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, April 2, 2015, ITLOS Reports 2015*, pp. 21–25, paras. 53–69. See, for example, for valid criticism of the reasoning adopted by ITLOS, Massimo Lando, “The Advisory Jurisdiction of the International Tribunal for the Law of the Sea: Comments on the *Request for an Advisory Opinion Submitted by the Sub-Regional Fisheries Commission*,” *Leiden Journal of International Law* 29, No. 2 (June 2016): 441; Tom Ruys and Anemoon Soete, “‘Creeping’ Advisory Jurisdiction of International Courts and Tribunals? The Case of the International Tribunal for the Law of the Sea,” *Leiden Journal of International Law* 29, No. 1 (March 2016): 155. the International Tribunal for the Law of the Sea (ITLOS)

⁶⁹ See the new advisory proceedings pending before ITLOS since December 12, 2022, ITLOS, “Request for an Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law (Request for Advisory Opinion Submitted to the Tribunal),” <https://www.itlos.org/>, accessed January 16, 2023, <https://www.itlos.org/en/main/cases/list-of-cases/request-for-an-advisory-opinion-submitted-by-the-commission-of-small-island-states-on-climate-change-and-international-law-request-for-advisory-opinion-submitted-to-the-tribunal/>, 2023, https://www.itlos.org/en/main/cases/list-of-cases/request-for-an-advisory-opinion-submitted-by-the-commission-of-small-island-states-on-climate-change-and-international-law-request-for-advisory-opinion-submitted-to-the-tribunal.

CHAPTER 3 |

BIODIVERSITY BEYOND NATIONAL JURISDICTION: 40 YEARS LATER, THE BBNJ AGREEMENT

Maria Inês Gameiro

A. Introduction

On the occasion of the forty-anniversary of UNCLOS, more than one hundred ninety-three delegations, under the auspices of the United Nations, successfully negotiated on March 4, 2023, the text of the BBNJ Agreement, marking another step towards an integrated and global governance of ocean affairs, as Arvid Pardo and others had envisioned.

On the morning of February 20, 2023, all delegations present knew that the stakes were high. The ocean covers three quarters of the Earth's surface and is the largest ecosystem in the world. Of this vast space, ABNJ account for more than 60%, which means that more than 40% of the surface of the Earth is *water beyond borders*, in a sense, a *no man's land* or, more amiably, a *global common*. The increasing pressure on the ocean and the advancements of scientific and technological development made it urgent to look attentively at this immense block of water, reinforcing the need for an ambitious world's vision. UNCLOS was a true revolution for law of the sea and politics, and in no small measure a revolution for societies, especially coastal communities. But a vast area remains "lawless" to some degree.

In 2004,¹ the United Nations began a lengthy process focused on the development of the BBNJ Agreement, with a clear mandate to establish a legal regime for the conservation and sustainable use of marine biodiversity of ABNJ. This was the goal of the many national delegations that negotiated tirelessly under the auspices of the United Nations. This goal was finally achieved on

¹ General Assembly resolution 59/24, *Oceans and the law of the sea*, A/RES/59/24 (February 4, 2005), pp. 13-14, para. 73, available at undocs.org/en/A/RES/59/24.

March 4, 2023, with the conclusion of negotiations on this historic new legally binding instrument—not long after the forty-anniversary of UNCLOS. Therefore, an early celebration, probably one of the earliest, of the BBNJ Agreement is in order. A broad analysis of its content is proposed in these pages—noting that more detailed contributions will come to light in coming months and years, in an exciting process that has already led law of the sea scholars to debate what they will call the new agreement in academic commentary. Additionally, some interesting comparisons can and will be made with the negotiation process and adoption of UNCLOS, even though forty years lie between the two instruments.

B. The origins of the BBNJ Agreement

UNCLOS—after nearly a decade of intense negotiations at the Third United Nations Conference on the Law of the Sea—replaced the traditional law of the sea,² which was based primarily on the principle of freedom of the seas. The traditional regime was replaced by another that sought to divide the maritime space, even though during the negotiation phase of UNCLOS—and even before—the actual connectiveness of ocean spaces was already known.

Several factors came together to determine the exact timing and increasing pressure for the BBNJ Agreement. *First*, the clear notion that the high seas provide ecosystem services that are vital to the planet, including regulatory services, particularly climate regulation; supporting services, including nutrient cycling; and provisioning services, such as food and genetic resources.³

Second, and simultaneously, the fact that the marine environment has changed significantly even in the distant high seas and in the deepest parts of the ocean became of great concern. Anthropogenic disturbance is prevalent. In fact, human activities are among those that most affect ABNJ, including (i) fishing, which is considered to have the greatest direct impact on marine biodiversity;

² Maria Eduarda Gonçalves and Maria Inês Gameiro, “Marine Scientific Research in the EEZ and on the Continental Shelf: Portugal’s Input to UNCLOS, and Experience in Addressing Foreign Entities’ Requests for Access,” in *Sustainable Development of the Ocean: A Necessity*, Maria João Bebianno, João Guerreiro, Telmo Carvalho e Maria Inês Gameiro (Faro: Universidade do Algarve Editora, 2018), 79–108.

³ Márcia Marques and Maria Inês Gameiro, “United Nations Agreement on Marine Biodiversity Beyond National Jurisdiction,” in *Life below Water*, ed. Walter Leal Filho et al., Encyclopedia of the UN Sustainable Development Goals / Series Editor: Walter Leal Filho (Cham: Springer, 2022), 1085–95.

(ii) shipping; (iii) land-based pollution;⁴ and evidently (iv) climate change, which is also a result of human activities, impacts the oceans through ocean warming and sea level rise, ocean acidification, and deoxygenation, and is also likely to distress fundamental biological and chemical processes in the ocean.⁵ Therefore, there is not only awareness of the importance of this natural system, but also of the impact of these activities, which taken together are undermining the planet's vital ocean system.⁶

Third, the increasing relevance of marine genetic resources, both scientifically and economically, is undisputable. The discovery of the potential of many deep sea biological resources holds the promise for a *new gold rush* in the deep sea and/or the possibility of finding new substances that can benefit humanity. *Finally*, the oceans gained new attention through SDG 14,⁷ which is entirely dedicated to *Life below water* and includes targets to address key challenges facing the ocean: (i) marine pollution; (ii) ocean conservation, restoration, and resilience; (iii) overfishing and destructive fishing practices, including harmful fishing subsidies; (iv) ocean acidification; and (v) sustainable development and management of ocean activities. SDG 14 specifically addresses the implementation of the “legal framework for the conservation and sustainable use of the oceans and their resources,”⁸ which includes UNCLOS and other international agreements supporting ocean governance, in Target 14.C.

Notwithstanding SDG14, the ocean, and in particular the high seas, remained hampered by fragmentation between different levels of management, geographic areas, and maritime sectors.⁹ At its fourth meeting, in 2011, the

⁴ David Leary et al., “Marine Genetic Resources: A Review of Scientific and Commercial Interest,” *Marine Policy* 33, No. 2 (March 2009): 183–94; Ross Wanless et al., “Ecological Baselines for the Southeast Atlantic and Southeast Pacific : Status of Marine Biodiversity and Anthropogenic Pressures in Areas Beyond National Jurisdiction,” 2019.

⁵ Katrina Abhold et al., “Ocean as a Global Commons: International Governance and the Role of Germany,” Report to the Science Platform Sustainability 2030 (Berlin: Institute for Advanced Sustainability Studies, 2019).

⁶ Glen Wright et al., “The Long and Winding Road: Negotiating a Treaty for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction” (Paris: Institut du développement durable et des relations internationales, 2018).

⁷ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁸ United Nations.

⁹ P. A. Bernal, “State Ocean Strategies and Policies for the Open Ocean,” in *Routledge Handbook of Ocean Resources and Management*, ed. Hance D. Smith, Juan Luis Suárez, and Tundi S. Agardy (London New York: Routledge, 2015).

Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biodiversity in ABNJ—that had been created in 2004—adopted the *package*: the main issues to be addressed in this process, namely marine genetic resources, including questions on benefit-sharing; EIAs; ABMTs, including marine protected areas, and capacity building and transfer of marine technology.

In 2012, at the Rio+20 Conference on Sustainable Development, States released the document *The Future We Want*, in which they committed to address

[...] the issue of the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including by taking a decision on the development of an international instrument under the Convention on the Law of the Sea.¹⁰

In 2015, a preparatory committee established by the General Assembly¹¹ set in motion the process that would lead to the convening of an intergovernmental conference to develop an international legally binding instrument on marine biodiversity in ABNJ.¹² The work of the conference began in 2018 and five meetings were held.¹³

The BBNJ Agreement has had to deal with several challenges from the outset: (i) a multi-tiered, fragmented system; (ii) the combination of global, regional, and national levels of governance; (iii) geographic dispersion; and (iv) the often national or local nature of the issues in relation to an ecosystem that knows no borders and must be considered as a coherent whole. This is a task that should not be underestimated, as a recent review of ocean governance found one hundred

¹⁰ General Assembly resolution 66/288, *The future we want*, A/RES/66/288 (September 11, 2012), p. 31, para. 162, available at undocs.org/en/A/RES/66/288.

¹¹ See, General Assembly resolution 69/292, *Development of an international legally binding instrument 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*, A/RES/69/292 (June 19, 2015), available at undocs.org/en/A/RES/69/292.

¹² See, General Assembly resolution 72/249, *International legally binding instrument 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*, A/RES/72/249 (January 19, 2018), available at undocs.org/en/A/RES/72/249.

¹³ First session: September 4-17, 2018; Second session: March 25-April 5, 2019; Third session: August 19-30, 2019; Fourth session (postponed due to the Covid-19 pandemic): March 7-18, 2022; Fifth session: August 15-26, 2022, and February 20-March 3, 2023.

and ninety-one international instruments, both binding and non-binding, that focus on issues affecting transboundary living marine resources.¹⁴

Finally, the BBNJ Agreement negotiated in a political environment where multilateralism is in crisis and where the gap between developed and developing countries, North and South, SIDS, resource-rich and poor countries has widened, all based on the concept of intergenerational environmental, economic, and social justice.

C. Main features of the BBNJ Agreement

The BBNJ Agreement aims to address a vast area of ocean space bordering SIDS, major ocean nations, pre-existing international informal groups of countries, regional agreements, conventions and mandates, and several other circumstances. All under the umbrella of UNCLOS—as much must not be forgotten. Overall, it brings back old debates about the “principle of common heritage of mankind (*sic*)” and about the different regimes for ocean governance.¹⁵

The negotiation phase—affected by the pandemic—lasted several years, and agreement on a *package deal* was difficult to reach. A breakthrough was achieved at the Fifth Intergovernmental Conference in August 2022, where many deadlocked issues were resolved.¹⁶ However, delegations could not agree on all remaining and outstanding issues.

The BBNJ Agreement governs four main issues that are particularly relevant to the vast ocean space that encompasses ABNJ: (i) marine genetic resources; (ii) area-based management tools; (iii) environmental impact assessments; and (iv) capacity-building and transfer of marine technology. Each of these issues will be addressed in the following subsections.

¹⁴ Robin Mahon et al., “Transboundary Waters Assessment Programme (TWAP) Assessment of Governance Arrangements for the Ocean,” Technical Series 119 (Paris: UNESCO, 2015); Robin Mahon and Lucia Fanning, “Regional Ocean Governance: Integrating and Coordinating Mechanisms for Polycentric Systems,” *Marine Policy* 107 (September 2019): 103589.

¹⁵ The principle was aptly called the “common heritage of humankind” in the BBNJ Agreement [see, Article 7(b) of the BBNJ Agreement].

¹⁶ General Assembly, *Draft report of the intergovernmental conference on an international legally binding instrument 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 at its fifth session*, A/CONF.232/2023/L.2 (February 28, 2023), available at undocs.org/en/A/CONF.232/2023/L.2.

1. Marine genetic resources

From a legal perspective, these are thrilling times for marine genetic resources. After years of debate about marine genetic resources of ABNJ, notoriously summarized in the idea of the *deepest of ironies* in ocean affairs, the BBNJ Agreement had a clear mandate to address this issue.¹⁷

Marine genetic resources include “any material of marine plant, animal, microbial or other origin containing functional units of heredity of actual or potential value.”¹⁸ They are “informational biological resources,” meaning that the value of a genetic resource is not the physical substance itself, but the genetic information contained in the resource.¹⁹ The biotechnological potential is particularly significant for those organisms that survive in environments of extreme pressure, acidity, darkness, temperature, heavy metal concentration, or radioactivity. These resources are therefore referred to as extremophilic or hyperthermophilic or chemosynthetic organisms. The isolation of bioactive marine compounds from a Caribbean sponge (*spongouridine* and *spongothymidine*) in the 1950s²⁰ was one of the first steps in demonstrating the relevance of marine genetic resources, whose scientific and economic potential for the marine biotechnology market is now recognized as significant.²¹

Marine genetic resources were among the most complex issues dealt with during the negotiations of the BBNJ Agreement. Divisions became apparent that mirrored other processes, such as that of the Nagoya Protocol, and illustrated the divide between developed and less developed countries or between the so-called Global North and Global South. For a long time, this divide was closely related to issues of access and benefit sharing, especially regarding the nature of monetary and non-monetary benefits. However, during the Fifth Intergovernmental Conference,

¹⁷ Lyle Glowka, “The Deepest of Ironies: Genetic Resources, Marine Scientific Research, and the Area,” *Ocean Yearbook Online* 12, No. 1 (1996): 154–78.

¹⁸ See, Article 1(8) of the BBNJ Agreement.

¹⁹ João Paulo Fernandes Remédio Marques, *Biotechnologia(s) e propriedade intelectual: justaposição e convergência na proteção das matérias biológicas pelo direito de autor, “direito especial” do fabricante de bases de dados e pelos direitos de propriedade industrial*, vol. I, Coleção Teses (Coimbra: Almedina, 2007), 25–26.

²⁰ Gian M. Luna, “Biotechnological Potential of Marine Microbes,” in *Springer Handbook of Marine Biotechnology*, ed. Se-Kwon Kim (Berlin, Heidelberg: Springer Berlin Heidelberg, 2015), 652.

²¹ Bob Hunt and Amanda C. J. Vincent, “Scale and Sustainability of Marine Bioprospecting for Pharmaceuticals,” *AMBIO: A Journal of the Human Environment* 35, No. 2 (March 2006): 57–64.

this divide was overcome and a solution was found based on the *decoupling solution*, *i.e.*, decoupling access and benefit-sharing and allowing monetary benefit-sharing based on a flat fee—a financial contribution to be paid by countries using marine genetic resources, most of which are technology-rich countries.²²

Another contentious issue regarding marine genetic resources was the notification mechanism, pre and post cruise reports, and uploading data. There was concern in the scientific community that these reports, especially the pre-cruise reports, could become a liability and hinder scientific research. As was the case forty years ago, there was apprehension that an excessive administrative burden placed over scientists could be discouraging and limit the capacity to conduct research activities, particularly at a time when the United Nations Decade of Ocean Science for Sustainable Development proclaims the ambition of having *The Science We Need for the Ocean We Want* by 2030. There was also the sensitive question of what information should be transmitted. In addition to recognizing the right of all Parties to carry out activities with respect to marine genetic resources of ABNJ under the BBNJ Agreement, it establishes a notification procedure for marine genetic resources and digital sequence information that provides that the collection *in situ* of marine genetic resources of ABNJ shall be carried out

[...] with due regard for the rights and legitimate interests of coastal States in areas within their national jurisdiction and also with due regard for the interests of other States in areas beyond national jurisdiction.²³

In this sense, the BBNJ Agreement defines the obligation to cooperate, including through a notification procedure to the clearing-house mechanism before and after the collection (*in situ*) of marine genetic resources, containing specific information such as “[t]he geographical areas in which the collection is to be undertaken.”²⁴

Finally, DSI, which is a term for the information component/digital data on the composition of biological materials, was yet another important issue related to marine genetic resources. In December 2022, the Fifteenth Conference of the

²² General Assembly, *Draft report of the intergovernmental conference on an international legally binding instrument 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 at its fifth session*.

²³ See, Article 11(3) of the BBNJ Agreement.

²⁴ See, Articles 11 and 12 of the BBNJ Agreement.

Parties to the CBD adopted the Global Biodiversity Framework and its associated decisions, in particular decision on DSI on genetic resources,²⁵ which represents a change in approach to this issue. States Parties at the conference decided to establish a multilateral mechanism, including a global fund, for the benefit sharing from DSI.²⁶ An *ad-hoc* working group will develop the mechanism, which will be presented at COP16, to be held in 2014, in Türkiye.²⁷ The solution requires some reflection on the balance between the proposed mechanism and previous systems, including different national measures for access and benefit-sharing. Nevertheless, Decision 15/9 provided a blueprint adaptable to the context of the high seas, paving the way to the inclusion of DSI on the BBNJ Agreement, a topic that until COP15 was generally deemed a contentious issue.

2. Area-based Management Tools, including Marine Protected Areas

Despite the lack of reference in UNCLOS to the specific concepts of integration, precaution, ecosystem approaches or MPA networks, the Convention establishes a general obligation for States to “protect and preserve the marine environment,”²⁸ and provides for cooperation

[...] directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.²⁹

In the same line, the CBD also contains clear objectives for the conservation and sustainable use of marine biodiversity, but with a limited mandate regarding the high seas. Some regional seas organizations have also included conservation

²⁵ See, Conference of the Parties to the CBD, *Digital sequence information on genetic resources*, CBD/COP/DEC/15/9 (December 19, 2022), available at <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-09-en.pdf>.

²⁶ See, Conference of the Parties to the CBD, *Digital sequence information on genetic resources*, CBD/COP/DEC/15/9, available at <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-09-en.pdf>, para. 16.

²⁷ See, Conference of the Parties to the CBD, para. 18.

²⁸ See, Article 192 of UNCLOS.

²⁹ See, Article 197 of UNCLOS. See also, Erik Jaap Molenaar and Alex G. Elferink, “Marine Protected Areas in Areas Beyond National Jurisdiction: The Pioneering Efforts Under the OSPAR Convention,” *Utrecht Law Review* 5, No. 1 (June 2009): 5–20; Wright et al., “The Long and Winding Road: Negotiating a Treaty for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction.”

and management duties in ABNJ.³⁰ But broader cooperation was recognizably needed. ABMTs are often considered one of the most effective options to address high seas impacts, and MPAs in particular are among the most widely accepted tools for biodiversity conservation.³¹ However, while 60% of the ocean consists of high seas, only around 1.3% of this vast ocean space is actually protected.³²

The BBNJ Agreement had a big task when it came to ABMTs, which proved to be one of the most highly contentious chapters in the final stage of negotiations. Apart from conservation objectives, there were discussions about whether to include a reference to supporting “food security and other socioeconomic objectives, including the protection of cultural values.”³³

Delegations agreed to submit proposals to the Secretariat for the establishment of ABMTs, including MPAs, in consultation and collaboration with relevant stakeholders—the inclusion of the private sector among stakeholders was also debated—to address concerns of transparency and inclusiveness. Following a detailed process, the decision on the establishment of an ABMT will be taken by the Conference of the Parties to the BBNJ Agreement.

Another relevant issue reflecting the difficult balance between the goals of the BBNJ Agreement and the specific interests of some delegations concerned the possibility of opting-out of a new MPA at the time of its establishment. This will allow States to decide whether to comply with the provisions of a particular ABMT or MPA established under the BBNJ Agreement, which may weaken this important management tool.³⁴

A new element introduced in the last stage of negotiations—reflecting the continuous dynamic nature of the negotiation process—was the inclusion of

³⁰ Examples include (i) the Convention for the protection and development of the marine environment of the wider Caribbean region [March 24, 1983, 1506 U.N.T.S. 25974, 157] and the Protocol concerning specially protected areas and wildlife to the Convention for the protection and development of the marine environment of the wider Caribbean region [January 18, 1990, 2180 U.N.T.S. 25974, 101]; (ii) the Barcelona Convention; and (iii) the OSPAR Convention and its Annex V “On the protection and conservation of the ecosystems and biological diversity of the Maritime Area.” See, Kristina M. Gjerde and Anna Rulska-Domino, “Marine Protected Areas beyond National Jurisdiction: Some Practical Perspectives for Moving Ahead,” *The International Journal of Marine and Coastal Law* 27, No. 2 (2012): 351–73.

³¹ Dan Laffoley et al., “Marine Protected Areas,” in *World Seas: An Environmental Evaluation*, ed. Charles Shepard (Elsevier, 2019), 549–69.

³² Marine Conservation Institute, “The Marine Protection Atlas,” accessed March 13, 2023, <https://mpatlas.org/>.

³³ See, Article 17(d) of the BBNJ Agreement.

³⁴ See, Article 23 of the BBNJ Agreement.

a provision on emergency measures to safeguard a timely response to natural disasters and activities that may harm the marine environment.³⁵

3. *Environmental Impact Assessments*

EIAs are a product—even a logical and resultant product—of the risk society in which we live.³⁶ They also derive from knowledge-based decision-making methods and, as defined in the BBNJ Agreement, aim “to identify and evaluate the potential impacts of an activity to inform decision-making.”³⁷ EIAs are also closely linked to Part XII of UNCLOS,³⁸ and, as risks become pervasive, are deeply connected with the notion of *precaution*. From the outset, there has been a divide among countries between the application of the precautionary principle and the precautionary approach.³⁹ States (and legal experts) have traditionally disagreed on the more or less binding nature of *precaution*. Opinions range from consideration of a full legal principle to the idea of an approach that has less legal weight. The divide also entails different conceptions of the burden of proof regarding risk and was ultimately not resolved in the BBNJ Agreement, which reads in relevant part:

Parties shall be guided by the following principles and approaches: [...]

(d) Precautionary principle or precautionary approach, as appropriate.⁴⁰

Widely considered essential, there are broadly two standard main views on decision-making processes related to EIAs. One view states that an internationalized process for decision-making on the proposed activity subject to EIA is the right way to go because it is an activity that takes place in an international space—the chosen option of most developing States, which have more confidence in international processes than State-led individual processes. The other view, preferred by developed States, favors a State-led EIA decision-making process. The rationale for this view is that the State party under whose jurisdiction or

³⁵ See, Article 24 of the BBNJ Agreement.

³⁶ Ulrich Beck, *Risk Society: Towards a New Modernity*, Theory, Culture & Society (London; Newbury Park, Calif: Sage Publications, 1992).

³⁷ See, Article 1(7) of the BBNJ Agreement.

³⁸ See, particularly, Article 194(2) of UNCLOS.

³⁹ See, for instance, Jonathan B. Wiener and Michael D. Rogers, “Comparing Precaution in the United States and Europe,” *Journal of Risk Research* 5, No. 4 (October 2002): 317–49.

⁴⁰ See, Article 7(e) of the BBNJ Agreement.

control the planned activity falls should be responsible for determining whether the activity can be conducted in a way that prevents significant adverse impacts on the marine environment and, accordingly, whether the activity can proceed.

Delegates decided on a State-led process—conducted in accordance with Part IV—but a balance was reached with the possibility of intervention of the Conference of the Parties and/or the Scientific and Technical Body and the inclusion of the possibility for parties to register concerns during the screening stage—the *call-in* mechanism.⁴¹

The issues regarding cumulative impacts and strategic environmental assessments or the level of transparency and inclusiveness of EIA reports were also debated. In fact, transparency issues were relevant throughout the negotiation process, in different chapters, also marking the relevance of such issue among delegations.

4. Capacity-building and Transfer of Marine Technology

The recognition of the need to develop legal obligations for cooperation and solid funding mechanisms goes back to the negotiation stage of UNCLOS, but it became increasingly relevant in recent years as ocean sustainability has become more clearly linked to ocean knowledge and the adoption of the United Nations Decade on Ocean Science for a Sustainable Ocean.⁴²

There is also a clear recognition that more must be done compared to Part XIV of UNCLOS—the *forgotten chapter*. However, the negotiation process underwent difficult hurdles, including with respect to the establishment of a special fund for CB&TMT or the specific tasks of the subsidiary bodies in their implementation. To ensure that more CB&TMT activities take place effectively, delegations have agreed to establish a CB&TMT committee that will work with the Subsidiary and Technical Body and the Conference of the Parties to the BBNJ Agreement. The committee will regularly monitor and review CB&TMT, addressing a number of tasks to effectively implement this chapter, including assessing the needs of developing countries, identifying priorities, and mobilizing resources.⁴³

⁴¹ See, Articles 28, 31 and, particularly, 34 and 38 of the BBNJ Agreement.

⁴² See, to this end, Harriet Harden-Davies et al., “How Can a New UN Ocean Treaty Change the Course of Capacity Building?” *Aquatic Conservation: Marine and Freshwater Ecosystems* 32, No. 5 (May 2022): 907–12.

⁴³ See, Articles 42, 45 and 46 of the BBNJ Agreement.

D. A comparative perspective forty years later: then and now

There are clear differences between UNCLOS and the BBNJ Agreement. Among the most important are their objectives: the scope of the former is quite broader, whereas that of the latter is more specific. Moreover, it is also structurally significant that the BBNJ Agreement stems from the legal regime established almost from scratch by UNCLOS. The creation of the Area and, by omission, the high-seas regime—Parts XI and VII of UNCLOS respectively—laid the ground for the creation of a legal system that now governs these areas.

However, there are also similarities between the negotiation process of UNCLOS and that of the BBNJ Agreement. *First*, the international geopolitical and strategic climate is more similar than we could have imagined a few years ago. Bearing in mind that UNCLOS was negotiated between 1973 and 1982—at the height of the Cold War and during times of rampant inflation and energy (oil) crises—it is easy to see the similarities, as we now face another war in Europe, with the invasion of Ukraine by Russia, a new energy crisis, the lasting effects of a pandemic, and a worrying inflationary period.

Second, another similarity relates obviously to the subject matter of the BBNJ Agreement—the ocean—and most of the protagonists—Member States of the United Nations. Beyond that, however, there are some other symbolic or symptomatic issues. One is the reaction of the scientific community to the treaty provisions, particularly those relating to marine scientific research. As stated, during the negotiation of UNCLOS, there were serious concerns about the inclusion of the later Part XIII, especially about the rights of coastal States to give their consent to marine scientific research activities.⁴⁴ This was also evident in the negotiations of the BBNJ Agreement, for those in the corridors, where some observers and members of the scientific community raised questions about the traceability process, arguing that it would place an undue burden on marine scientific research.

More broadly, the permanent interplay between the law of the sea and science—considering the recognition of scientific knowledge as critical in all ocean-related processes—continues to challenge legal experts to engage in a dialogue with marine scientists. As mentioned, these issues were raised during the negotiation of UNCLOS, including on topics such as what should be in the scope of Part XIII

⁴⁴ United Nations, *Marine Scientific Research: A Revised Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (New York: United Nations Publication, 2010).

but also what were the differences between fundamental and applied science.⁴⁵ Now, current legal frameworks such as the BBNJ Agreement need to address digital sequence information and other very novel and cutting-edge scientific topics.

Another familiar topic was that of financing, including the wide conflicting views of States, particularly between developed and developing States. After 1982, it became very clear that despite the large number of signatures, most of them were from developing countries. It was also clear that, especially for the functioning of the ISA (and other issues), the signatures of developed, financing countries were essential. So, despite the strong commitment of several States, UNCLOS was unable to evolve, and the 1994 Agreement relating to the implementation of Part XI of the Convention was intended to do just that—changing the rules for several provisions to which developed States had not agreed led to signatures by said developed States. In turn, it had the effect of reinstating some aspects of UNCLOS that were obsolete or inactive, including the ISA.

Negotiations of the BBNJ Agreement have only just been successfully concluded, so it is too early to make such bold claims. During the negotiations, however, it became clear how important funding issues are and cross-cutting issues in general, especially in the creation of a conference of parties to the BBNJ Agreement, a functioning secretariat, and a subsidiary technical body, all of which require funding to function and carry out their mandates.

The Conference of the Parties to the BBNJ Agreement will play a critical role in shaping the future direction of the BBNJ Agreement, having been tasked with decisions such as (i) the rules of procedure for itself and its subsidiary bodies; (ii) the functioning of the Finance Committee, the establishment of a voluntary trust fund and additional funds; (iii) the operation of the clearing-house mechanism; (iv) the assessment of the transparency of decision-making processes and other activities, and (v) the review of the effectiveness and adequacy of the BBNJ Agreement.⁴⁶

E. Outcomes, future directions of the BBNJ Agreement

The BBNJ Agreement expressly states that it should not “undermine relevant legal instruments and frameworks and relevant global, regional, subregional

⁴⁵ United Nations.

⁴⁶ See, Articles 47, 48, 51 and 52 of the BBNJ Agreement.

and sectoral bodies.”⁴⁷ However, the linkage with other instruments remains a big question mark.⁴⁸ For marine genetic resources in particular, it is clear that activities related to these resources are on a continuum from scientific research to bioprospecting and commercial development. On this issue, the TRIPS Agreement also plays a key role, in addition to the CBD (and the Nagoya Protocol),⁴⁹ as recognized in the Doha Ministerial Declaration.⁵⁰ These instruments, together with UNCLOS, formed the triangle for research and exploitation of genetic resources,

Several patent law dilemmas arise in the debate over genetic resources: “the distinction between invention and discovery, the exclusion criteria of public policy, the patentability of living organisms, and the trade-off between patents and plant and species protection.”⁵¹ Moreover, the current circumstances, following the outbreak of a pandemic, raise further questions about patent law, especially possible exceptions due to public reasons.

F. Conclusion

Some forty years ago, the international community accomplished a masterpiece by defining a new legal regime for the ocean. However, despite the many achievements, a large part of the ocean space remained excluded from this regime.

The BBNJ Agreement sought to address this problem, and it was a Herculean task by any standards, with significant difficulties in getting the agreement across the finish line. Clearly, marine genetic resources play a prominent role, but other issues are also critical to global ocean governance and, to put it bluntly, to the planet itself, such as ABMTs, especially MPAs.

The benefit of having followed the negotiation process closely allows two preliminary conclusions: the BBNJ Agreement is a far-reaching agreement that was negotiated in a difficult political climate and, as such, required a great deal of

⁴⁷ See, Article 5 of the BBNJ Agreement.

⁴⁸ See, addressing existing legal instruments and frameworks related to the BBNJ Agreement, Arne Langlet and Alice B.M. Vadrot, “Not ‘Undermining’ Who? Unpacking the Emerging BBNJ Regime Complex,” *Marine Policy* 147 (January 2023): 105372.

⁴⁹ See, TRIPS Agreement.

⁵⁰ Doha Declaration on the TRIPS Agreement and Public Health, adopted by the WTO Ministerial Conference of 2001, Doha, November 14, 2001, para. 19.

⁵¹ OECD, “Genetic Inventions, Intellectual Property Rights and Licensing Practices. Evidence and Policies” (Paris: OECD, 2002), 74, <https://www.oecd.org/health/biotech/2491084.pdf>.

compromise at every step. This is not the place to describe each chapter in detail, but building bridges was a necessary step in each of them.

Apart from the required compromise reached on more or less relevant aspects of each chapter, there are critical issues that could pose obstacles in the next steps. *First*, the relationship between the BBNJ Agreement, UNCLOS, and other relevant agreements and instruments and respect for the mandates of relevant international frameworks and bodies. Indeed, the BBNJ Agreement must not undermine them.⁵² This could *de facto* limit the scope of the BBNJ Agreement. *Second*, the inclusion of what is now the *common heritage of humankind* and the *freedom of the high seas*—a highly contentious issue between developed and developing States, for which a solution was found with the inclusion of both principles in Article 7 of the BBNJ Agreement.

Now that negotiations of the BBNJ Agreement are complete, a long process begins until it enters into force and the relevant bodies begin their work. States now play another key role in the next phase, and Portugal is certainly one of them. As an influential nation in matters of the law of the sea, both internationally and at the European level, this BBNJ Agreement is also very important for Portugal—a coastal State whose maritime borders are largely adjacent to the Area and the high seas. The BBNJ Agreement is now our largest neighbor.

The journey seems to be just beginning. What cannot be underestimated, however, is the truly historic nature of the current agreement, which marks the long evolution from Grotius' *freedom of the seas* and Elisabeth I's *first come, first served* to our own time. The Area and the high seas remain ABNJ, but they are no longer a space freely accessible to all. They represent a vast and vital space for humanity and will finally be protected as such. Or as the President of the Conference Rena Lee said on the last day, announcing agreement on a text: "The ship has reached the shore."

⁵² See, Article 5 of the BBNJ Agreement.

CHAPTER 4 |

THE RULE OF LAW AT SEA IN DIFFICULT TIMES: THE SOUTH CHINA SEA AND THE BLACK SEA

Vasco Becker-Weinberg

A. Introduction

The South China Sea and the Black Sea are two semi-enclosed seas where, in the first case, maritime disputes are the result of overlapping claims and the legal status of offshore features, while in the second, attempts to control international navigation in the context of a military confrontation, namely the Russian occupation of Crimea in 2014 and Russian military intervention in Ukraine in 2022, have jeopardized the rule of law at sea. In both cases, the implications of the ongoing disputes have far-reaching implications, albeit the circumstances in each case are obviously different.

This chapter examines the unique context of each of the two disputes and their implications for the interpretation of the rule of law at sea. It begins with an assessment of the South China Sea Arbitration and the efforts made by China and the Philippines to side-track the findings of the arbitral tribunal and create a *new modus vivendi*. The chapter then proceeds with an overview of the legal regime applicable to international navigation through the Turkish Straits, against the background of the Montreux Convention and in the context of the ensuing military conflict.

B. The South China Sea Arbitration¹

1. Commencement of the proceedings

The South China Sea is a semi-enclosed sea bordered by China, Vietnam, Malaysia, Singapore, Indonesia, Brunei, and the Philippines, all of which are parties to UNCLOS. Of these seven coastal States, five have overlapping claims, namely

¹ Based on Vasco Becker-Weinberg, “From Legal Warfare to Legal Cooperation: The China-Philippines Relation in the South China Sea beyond the Arbitration,” *Il Diritto Marittimo*, Dottrina, 19, No. III (2017): 621–46.

China, Vietnam, Malaysia, Brunei, and the Philippines. The dispute between the Philippines and China in the South China Sea has been longstanding, ranging from hostile actions and extreme national rhetoric to efforts to seek alternative legal solutions, such as the implementation of interim measures in an attempt by both countries to maintain a “[...] healthy and stable development of the bilateral relations.”² Yet, thus far, both States have neither engaged in any negotiations to resolve their disputes in the South China Sea, nor are they likely to do so in the near future. In recent years, there have been significant developments in relations between China and the Philippines, culminating in the initiation of arbitral proceedings by the Philippines against China.³

On January 22, 2013, the Philippines notified China to submit the dispute between the two States regarding the South China Sea to arbitration under Article 287 of UNCLOS and Article 1 of Annex VII to UNCLOS.⁴ The Philippines’ primary concern in commencing proceedings against China was to challenge the latter’s

[...] claims to areas of the South China Sea and the underlying seabed as far as 870 nautical miles from the nearest Chinese coast, to which China has no entitlement under [UNCLOS], and which, under the Convention, constitute the Philippines’ [EEZ] and continental shelf.⁵

The Chinese Ambassador to the Philippines expressed China’s rejection of the notification and statement of claim in a *note verbale* based on the fact that the dispute before the arbitral tribunal concerned maritime delimitation, which is excluded by China’s declaration under Article 298 of UNCLOS, dated August 25, 2006, when it ratified UNCLOS,⁶ and because the disputes were over territorial sovereignty

² Ministry of Foreign Affairs of the People’s Republic of China, “Ambassador Liu Jianchao Pays Courtesy Call on Philippine Foreign Affairs Secretary Romulo,” March 13, 2009, http://ph.china-embassy.gov.cn/eng/sgdt/200903/t20090313_1181339.htm; Ministry of Foreign Affairs of the People’s Republic of China, “China and the Philippines Held 19th Foreign Ministry Consultations,” June 14, 2013, http://asean.china-mission.gov.cn/eng/zgwj/201306/t20130615_8241236.htm.

³ *The Republic of Philippines v. The People’s Republic of China*, PCA Case No. 2013-19, Annex VII to the 1982 United Nations Convention on the Law of the Sea, Award on Jurisdiction and Admissibility, dated October 29, 2015.

⁴ *The Republic of Philippines v. The People’s Republic of China*, Notification and Statement of Claim on the West Philippine Sea, dated, January 22, 2013.

⁵ *The Republic of Philippines v. The People’s Republic of China*, para. 1.

⁶ United Nations Treaty Collection, “United Nations Convention on the Law of the Sea. Status,” <https://treaties.un.org>, accessed March 27, 2023, https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en#15.

and not questions of interpretation or application of UNCLOS. The *note verbale* reiterated that China has indisputable sovereignty over the entire South China Sea encompassed by China's *nine-dash line*⁷ claim and that China considers that

[...] its sovereignty over the Nansha Islands [Spratly Islands in English and Kalayann Islands in Filipino] and their adjacent waters is supported by abundant historical and legal evidence.⁸

China further stated that the notification and statement of claim submitted by the Philippines contained “[...] many grave errors both in fact and in law” and included “many false accusations against China.”⁹ Moreover, China recalled that “[...] bearing in mind the larger interest of China-Philippines relations and regional peace and stability,” the Philippines should return to and uphold the established consensus between China and ASEAN that disputes shall be resolved through bilateral negotiations, as set forth in the China-ASEAN Declaration on the Conduct of Parties in the South China Sea, dated November 4, 2002.¹⁰ China believes it has made every effort to maintain stability and promote regional cooperation in the South China Sea. It urged the Philippines to react

[...] positively to China's proposals on establishing a bilateral regular consultation mechanism on maritime issues [...] [to resume] the operation of the Confidence Building Measures Mechanism established between the two countries.¹¹

⁷ Also commonly referred to as *nine-dotted lines* or *U-shaped line map*. See, on the drawing of the *nine-dash line* and the Chinese perception of the South China Sea disputes, Stefan Talmon and Jia Bing Bing, “Introduction,” in *South China Sea Arbitration: A Chinese Perspective*, ed. Stefan Talmon and Jia Bing Bing (Oxford: Hart, 2014), 2–8; Shicun Wu, *Solving Disputes for Regional Cooperation and Development in the South China Sea: A Chinese Perspective* (Oxford: Chandos Publishing, 2013), 34–39 and 77–83; Kuen-Chen Fu, “Safeguarding China's National Interests in the South China Sea: Rectification, Services, Leadership, and Maritime Delimitation,” *China Oceans Law Review*, 2013.

⁸ Ministry of Foreign Affairs of the People's Republic of China, “Position Paper of the Government of the People's Republic of China on the Matter of Jurisdiction in the South China Sea Arbitration Initiated by the Republic of the Philippines,” December 7, 2014, https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/201412/t20141207_679387.html; Ministry of Foreign Affairs of the People's Republic of the Philippines, “DFA Statement on China's Response to the PH Arbitration Case before UNCLOS,” February 19, 2013, <https://www.officialgazette.gov.ph/2013/02/19/dfa-statement-on-chinas-response-to-the-ph-arbitration-case-before-unclos/>.

⁹ Ministry of Foreign Affairs of the People's Republic of China, “Chinese Spokesperson Hong Lei's Remarks on China Returned the Philippines' Notification on the Submission of South China Sea Issue to International Arbitration,” February 19, 2013, http://ph.china-embassy.gov.cn/eng/zt/nhwt/201302/t20130219_1334625.htm.

¹⁰ ASEAN, “2002 Declaration on the Conduct of Parties in the South China Sea,” November 4, 2002, <https://cil.nus.edu.sg/wp-content/uploads/2017/07/2002-Declaration-on-the-Conduct-of-Parties-in-the-South-China-Sea.pdf>.

¹¹ ASEAN.

Despite China's *note verbale* and its position of non-acceptance and non-participation in the arbitral proceedings, the Philippines remained committed to pursuing the arbitration under Annex VII of UNCLOS, underlying that "[...] the 5-member arbitration panel will be formed with or without China."¹²

The Philippines made fifteen specific submissions in its Memorial of March 30, 2014, seeking rulings on three interrelated matters: (i) the legality of historic rights within the *nine-dash line*; (ii) the legal status and projections of certain features, particularly where these are capable of generating entitlement to maritime zones greater than twelve nautical miles; and (iii) China's compliance with UNCLOS.¹³ At a later stage, the Philippines also sought the appraisal of the arbitral tribunal of China's actions during the proceedings.¹⁴ The Philippines considered that China's *nine-dash line* interfered with its EEZ and continental shelf. It also maintained that China's claim and occupation within the *nine-dash line* of submerged banks, reefs, and low tide elevations hinder its rights with respect to these features. In addition, the Philippines considered that China's claim to maritime zones of more than twelve nautical miles around Chinese occupied areas, which the Philippines considered to be rocks under Article 121(3) of UNCLOS, resulted in encroachment by these zones on the EEZ of the Philippines.

The main obstacle to the Philippines' intention to pursue arbitration—and thus to the arbitral tribunal having jurisdiction—was China's declaration under Article 298 of UNCLOS when it ratified UNCLOS,¹⁵ excluding the applicability of compulsory dispute settlement. The Philippines stressed that none of its arguments were precluded by such a declaration. It further stressed that the dispute before the arbitral tribunal concerned the source of maritime entitlements and the lawfulness of China's activities in the South China Sea,¹⁶ and not issues related to territorial sovereignty or boundary delimitation, thus establishing

¹² Ministry of Foreign Affairs of the People's Republic of the Philippines, "DFA Statement on China's Response to the PH Arbitration Case before UNCLOS."

¹³ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, paras. 4–7, 101 [(14)]; *The Republic of Philippines v. The People's Republic of China*, PCA Case No. 2013–19, Annex VII to the 1982 United Nations Convention on the Law of the Sea, Award, dated July 12, 2016, para. 112.

¹⁴ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, para. 72; *The Republic of Philippines v. The People's Republic of China*, Award, paras. 35 and 46.

¹⁵ United Nations Treaty Collection, "United Nations Convention on the Law of the Sea. Status."

¹⁶ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, paras. 4–6.

a distinction between maritime entitlements and territorial sovereignty and boundary delimitation. The Philippines did not request the arbitral tribunal to determine which State has territorial sovereignty over any of the features or to establish a maritime boundary. Instead, it noted that the two issues, *i.e.*, entitlement and boundary delimitation, are not closely related and should therefore be distinguished.¹⁷

2. *The award on jurisdiction and admissibility*

Following the proceedings, which were initiated on January 22, 2013, and concluded on June 24, 2013, by the five-member arbitral tribunal pursuant to Annex VII,¹⁸ the award on jurisdiction and admissibility was issued on October 29, 2015.¹⁹ The arbitral tribunal was satisfied that it had jurisdiction under Articles 286 and 287(3) and Articles 1 and 9 of Annex VII of UNCLOS, although China refused to accept and participate in the proceedings.²⁰

Article 9 of Annex VII of UNCLOS provides that non-participation and non-acceptance of proceedings by one party does not constitute an obstacle to the same so long as the tribunal is satisfied as to its jurisdiction and the claim is well founded. The arbitral award is final, binding, and without appeal for all parties, including those not present, unless the parties have agreed in advance to an appellate procedure, a possibility which China precluded by not participating in the proceedings.²¹ Other important consequences of China's non-participation were its relinquishment of the ability to set the rules of procedure, appoint arbitrators and experts, submit evidence, and present its case as a whole.²²

During the proceedings, the arbitral tribunal issued Procedural Order No. 4,²³ which established the bifurcation of the proceedings into a phase dealing

¹⁷ *The Republic of Philippines v. The People's Republic of China*, para. 8.

¹⁸ ITLOS, "New Arbitrator and President Appointed in the Arbitral Proceedings Instituted by the Republic of the Philippines against the People's Republic of China," April 25, 2013, https://www.itlos.org/fileadmin/itlos/documents/press_releases_english/PR_191_E.pdf.

¹⁹ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, dated October 29, 2015.

²⁰ Stefan Talmon, "The South China Sea Arbitration: Is There a Case to Answer?," in *South China Sea Arbitration: A Chinese Perspective*, ed. Stefan Talmon and Jia Bing Bing (Oxford: Hart, 2014), 25–59.

²¹ See, Article 296(1) of UNCLOS.

²² See, Articles 3 to 5 of Annex VII of UNCLOS.

²³ *The Republic of Philippines v. The People's Republic of China*, PCA Case No. 2013-19, Annex VII to the 1982 United Nations Convention on the Law of the Sea, Procedural Order No. 4, dated April 21, 2015.

with jurisdiction and admissibility and a second phase on the merits.²⁴ This is another aspect where China could have made its voice heard, especially since the Philippines had opposed the bifurcation of the proceedings.²⁵

However, China's non-acceptance and non-participation in the proceedings did not mean that the arbitral tribunal should not consider its position.²⁶ Indeed, as the arbitral tribunal recognized,

China's non-participation does, however, impose a special responsibility on the Tribunal. The Tribunal does not simply adopt the Philippines' claims, and there can be no default judgement as a result of China's non-appearance. Rather, under the terms of Article 9 of Annex VII, the Tribunal "must satisfy itself not only that it has jurisdiction over the dispute but also that the claim is well founded in fact and law" before making any award.²⁷

In order to achieve this purpose and render an award that is "well founded in fact and law," the arbitral tribunal specifically considered the Position Paper of China on the matter of Jurisdiction in the South China Sea Arbitration,²⁸ which it considered *de facto* preliminary objections, in addition to several communications from China to both the Philippines and the PCA, which served as registry during the proceedings.²⁹ Indeed, the arbitral tribunal made significant efforts throughout the proceedings to safeguard China's procedural rights.³⁰ The main

²⁴ In particular, the arbitral tribunal decided that

[...] the Arbitral Tribunal considers that, in light of the circumstances and its duty to 'assure to each Party a full opportunity to be heard and to present its case,' it is appropriate to bifurcate the proceedings and to convene a hearing to consider the matter of the Arbitral Tribunal's jurisdiction and, as necessary, the admissibility of the Philippines' submissions ("Hearing on Jurisdiction").

The Republic of Philippines v. The People's Republic of China, Award on Jurisdiction and Admissibility, para. 63. See also, *The Republic of Philippines v. The People's Republic of China*, Award, para. 45.

²⁵ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, paras. 15–16 and 68.

²⁶ The arbitral tribunal addressed at length the legal and practical consequences of China's non-participation at *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, paras. 112–123.

²⁷ *The Republic of Philippines v. The People's Republic of China*, para. 12.

²⁸ Ministry of Foreign Affairs of the People's Republic of China, "Position Paper of the Government of the People's Republic of China on the Matter of Jurisdiction in the South China Sea Arbitration Initiated by the Republic of the Philippines."

²⁹ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, paras. 10, 15, 27 and 64.

³⁰ *The Republic of Philippines v. The People's Republic of China*, Award, paras. 116–144.

conclusion to be drawn is that China did not ignore the proceedings, although it decided not to accept or participate in them, which in its own view was a decision based on international law.³¹

As to the substance of China's position, China adhered to its *historic rights approach* and considered the issue of territorial sovereignty over maritime features as ancillary to the Philippines' submissions, which would be outside the scope of UNCLOS.³²

China considered the subject-matter of the arbitration to be integral to the issue of territorial sovereignty over some islands and reefs of Nansha Qundao (the Nansha Islands). Moreover, China considered that not only territorial issues are not covered by UNCLOS, but also disputes over maritime delimitation are excluded from the compulsory dispute settlement procedures provided by the Convention based on China's declaration under Article 298 of UNCLOS, dated August 25, 2006, when it ratified UNCLOS.³³ China does not consider that any of these issues are related to disputes over the interpretation or application of UNCLOS.

China also argued that the Philippines' unilateral initiation of arbitration violated the bilateral agreement between the two States to resolve the relevant disputes in the South China Sea through negotiation, as well as the commitment made in the China-ASEAN Declaration on the Conduct of Parties in the South China Sea, dated November 4, 2002, to resolve the relevant disputes through negotiation by the directly concerned States. The arbitral tribunal addressed the issue of its jurisdiction at length, taking into consideration this declaration and other potentially applicable instruments and arrangements, even if they were not invoked by China in its Position Paper or other communications to

³¹ This position has not changed since the issuing of the award on July 12, 2016. See, Ministry of Foreign Affairs of the People's Republic of China, "Foreign Ministry Spokesperson Lu Kang's Remarks on Statement by Spokesperson of US State Department on South China Sea Arbitration Ruling," July 13, 2013, https://www.fmprc.gov.cn/nanhai/eng/fyrbt_1/201607/t20160713_8525599.htm. See also, Ministry of Foreign Affairs of the People's Republic of China, "Statement of the Ministry of Foreign Affairs of the People's Republic of China on the Award of 12 July 2016 of the Arbitral Tribunal in the South China Sea Arbitration Established at the Request of the Republic of the Philippines," July 12, 2016, https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/201607/t20160712_679470.html.

³² Ministry of Foreign Affairs of the People's Republic of China, "China Adheres to the Position of Settling Through Negotiation the Relevant Disputes Between China and the Philippines in the South China Sea," July 13, 2016, https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/201607/t20160713_679474.html.

³³ United Nations Treaty Collection, "United Nations Convention on the Law of the Sea. Status."

the Philippines or the PCA. These included the Treaty of Amity and Cooperation in the Southeast Asia and the CBD.³⁴ The arbitral tribunal found that the China-ASEAN Declaration on the Conduct of Parties in the South China Sea, dated November 4, 2002, was not legally binding and that the Treaty of Amity and Cooperation in the Southeast Asia 1976 and the dispute settlement provisions of the CBD, while legally binding, did not preclude the jurisdiction of the arbitral tribunal under Article 281(1) of UNCLOS in the absence of a negotiated settlement agreement.³⁵ As noted by Yoshifumi Tanaka, the interpretation of the arbitral tribunal regarding this provision differs from that adopted in the *Southern Bluefin Tuna Arbitration* regarding the exclusion of Part XV,³⁶ which underlined the existence of “two contrasting approaches to the dispute settlement system set out in [UNCLOS].”³⁷

Tanaka also questioned whether the arbitral tribunal could adjudicate a territorial matter related to a maritime matter, considering that the Sino-Philippine dispute is mixed³⁸ and there is no agreement between the Philippines and China to settle territorial and maritime disputes, which are closely intertwined, in the same proceedings.³⁹

Tanaka also recalled the position adopted by the arbitral tribunal in the *Chagos Marine Protected Area* case and the *ancillary test*,⁴⁰ whereby the

Arbitral Tribunal can adjudicate a “minor issue of territorial sovereignty” which is ancillary to the real issue regarding the interpretation or application of the Convention that could fall within the ambit of Article 288(1).⁴¹

³⁴ Treaty of amity and cooperation in Southeast Asia, February 24, 1976, 1025 U.N.T.S. 15063. 297. It entered into force on June 21, 1976.

³⁵ *The Republic of Philippines v. The People's Republic of China*, Award on Jurisdiction and Admissibility, paras. 189–353. See, on a different perspective, Jia Bing Bing, “The Issue of Admissibility in Inter-State Arbitration,” in *South China Sea Arbitration: A Chinese Perspective*, ed. Stefan Talmon and Jia Bing Bing (Oxford: Hart, 2014), 111–25.

³⁶ *Southern Bluefin Tuna (New Zealand v. Japan; Australia v. Japan)*, Provisional Measures, Order of 27 August 1999, ITLOS Reports 1999, paras. 52–62.

³⁷ Yoshifumi Tanaka, “Reflections on the Philippines/China Arbitration,” *The Law & Practice of International Courts and Tribunals* 15, No. 2 (September 22, 2016): 320–23.

³⁸ The dispute is mixed because it involves territorial and maritime issues at the same time.

³⁹ Tanaka, “Reflections on the Philippines/China Arbitration,” 318–19.

⁴⁰ *The Republic of Mauritius v. The United Kingdom of Great Britain and Northern Ireland*, PCA Case No. 2011-03, Annex VII of the United Nations Convention on the Law of the Sea, Award, dated March 18, 2005, paras. 220–221.

⁴¹ Tanaka, “Reflections on the Philippines/China Arbitration,” 316 and 318–19.

The ensuing question is what is to be considered a “minor issue of territorial sovereignty.”⁴² Nonetheless, regarding both instances, *i.e.*, the exclusion of Part XV of UNCLOS and the applicability of the *ancillary test*, Article 288(4) of UNCLOS provides that “[i]n the event of a dispute as to whether a court or tribunal has jurisdiction, the matter shall be settled by decision of that court or tribunal.”

Lastly, the arbitral tribunal in the South China Sea Arbitration also considered the possible applicability of the obligation to exchange views under Article 283 of UNCLOS,⁴³ in light of the aforementioned *Chagos Marine Protected Area*.⁴⁴ In this regard, the arbitral tribunal found that the Philippines and China had exchanged views and thus the obligation included in that provision had been fulfilled, thus not precluding the jurisdiction of the arbitral tribunal.⁴⁵

Following the decision on the bifurcation of the proceedings pursuant to the abovementioned Procedural Order No. 4, the award on jurisdiction and admissibility took into consideration the possible effects that a decision on jurisdiction might have on the merits.⁴⁶ As such, the arbitral tribunal concluded that its jurisdiction over certain arguments raised by the Philippines can only be examined together with the merits.⁴⁷

3. *The award on merits*⁴⁸

One of the most complex situations in the South China Sea involves overlapping claims in maritime areas adjacent to offshore features disputed by two or more States, especially since UNCLOS does not provide rules for the settlement of land disputes.⁴⁹

⁴² Tanaka, 319.

⁴³ See, Article 283 of UNCLOS.

⁴⁴ *The Republic of Mauritius v. The United Kingdom of Great Britain and Northern Ireland*, Award, dated March 18, 2005, paras. 382–383.

⁴⁵ *The Republic of Philippines v. The People’s Republic of China*, Award on Jurisdiction and Admissibility, para. 343.

⁴⁶ *The Republic of Philippines v. The People’s Republic of China*, para. 397.

⁴⁷ *The Republic of Philippines v. The People’s Republic of China*, paras. 398–412.

⁴⁸ *The Republic of Philippines v. The People’s Republic of China*, Award.

⁴⁹ There are many features in the South China Sea, including small islands, islets, rocks, shoals, drying reefs and low-tide elevations. The most relevant are the Paracel Islands, the Pratas Islands, the Scarborough Shoal (which is disputed between China and the Philippines), the Natuna Islands and the Spratly Islands.

The legal definition and regime provided in Article 121(1) of UNCLOS is merely a vague formula that applies to the characterization of islands and the indication of the maritime areas granted to them.⁵⁰

The ambiguity of this formula is consistent with the wording of Article 10(1) of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone, which is considered part of customary international law.⁵¹

On many occasions, territorial disputes regarding islands are motivated by the ambition of States to secure access to the natural marine resources located in their respective adjacent maritime areas. It may also be the case that islands are critical to achieving a more advantageous outcome in the delimitation of maritime boundaries. In this respect, international jurisprudence has repeatedly held that small islands should be disregarded or their potential not fully realized if they have a disproportionate effect on the delimitation line under consideration and consequently lead to an unfair result.⁵²

⁵⁰ See, Myron H. Nordquist, "Textual Interpretation of Article 121 in the UN Convention on the Law of the Sea," in *Coexistence, Cooperation and Solidarity: Liber Amicorum Rüdiger Wolfrum*, ed. Holger P. Hestermeyer et al., vol. 1, 2 vols. (Leiden: Nijhoff, 2012), 991–1036; Clive Schofield, "Chapter II. The Trouble With Islands: The Definition And Role Of Islands And Rocks In Maritime Boundary Delimitation," in *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea*, ed. Jon M. van Dyke and Seoung-Yong Hong (Brill | Nijhoff, 2009), 19–37, https://brill.com/view/book/edcoll/9789047426899/Bej.9789004173439.i-308_003.xml; Victor Prescott and Clive Schofield, "4. Islands and Rocks," in *The Maritime Political Boundaries of the World*, 2nd ed. (Brill | Nijhoff, 2004), 57–91; Barbara Kwiatkowska and Alfred H.A. Soons, "Entitlement to Maritime Areas of Rocks Which Cannot Sustain Human Habitation or Economic Life of Their Own," *Netherlands Yearbook of International Law* 21 (December 1990): 139; Barbara Kwiatkowska and Alfred H.A. Soons, "Entitlement to maritime areas of rocks which cannot sustain human habitation or economic life of their own", in: 21 *Netherlands Yearbook of International Law* (1990), pp. 139–181.

⁵¹ In the case between Qatar and Bahrain, the ICJ did not specifically refer to Article 121(3) of UNCLOS, but it observed that the entitlement to maritime rights accorded to an island in paragraph 2 is expressly limited by reference to paragraph 3 [*Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, Judgment, I.C.J. Reports 2001, paras. 167, 185 and 195]. In the case between Nicaragua and Colombia, the ICJ considered that the legal regime of islands was indivisible and had the status of customary international law [*Territorial and Maritime Dispute (Nicaragua v. Colombia)*, Judgment, I.C.J. Reports 2012, para. 139].

⁵² *North Sea Continental Shelf cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*, Judgment, I.C.J. Reports 1969, para. 57; *Continental Shelf (Libyan Arab Jamahiriya/Malta)*, Judgment, I.C.J. Reports 1985, paras. 53–54 and 64–73; *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, Judgment, paras. 185, 219; *Case Concerning Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, Judgment, I.C.J. Reports 2009, paras. 166–168 and 179–188. See also, *Maritime Delimitation in the Area between Greenland and Jan Mayen*, Judgment, I.C.J. Reports 1993, paras. 68–69; *Maritime Delimitation in the Area between Greenland and Jan Mayen, Separate Opinion of Judge Schwebel*, I.C.J. Reports 1993, para. 128; *Delimitation of the Maritime Boundary in the Gulf of Maine Area*, Judgment, I.C.J. Reports 1984, para. 157; *Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea intervening)*, Judgment, I.C.J. Reports 2002, para. 301.

In certain circumstances, islands may be given partial effect to meet these requirements.⁵³ Additionally, not every feature is an island and therefore may be considered a full marine area.⁵⁴

As a result, international courts and tribunals are entrusted with the task of determining what an island or rock is and what its significance should be for delimitation purposes. For example, in an arbitration between the United Kingdom and France, the arbitral tribunal concluded that

[t]he case of the Channel Islands must, in view of the Court, be differentiated from that of the rocks or small islands which figure in some of the precedents canvassed by the Parties in their pleadings. Possessing a considerable population and a substantial agricultural and commercial economy, they are clearly territorial and political units which have their own separate existence, and which are of a certain importance in their own right separately from the United Kingdom.⁵⁵

Notwithstanding, it is not completely unlikely that international courts avoid the difficult issue of determining the legal status of a feature, as occurred in the *Case Concerning Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, in which the ICJ considered confirmation of whether Serpents' Island was in fact an island to be irrelevant to the outcome of the case.⁵⁶

⁵³ *Continental Shelf (Libyan Arab Jamahiriya/Malta)*, Judgment, paras. 129–131. See also, *Case concerning the delimitation of continental shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic*, Decision of June 30, 1977, in *Reports of International Arbitral Awards*, Vol. XVIII, available at https://legal.un.org/riaa/cases/vol_XVIII/3-413.pdf, paras. 194–203. See, on the relevance given to islands for the purpose of maritime delimitation, D. W. Bowett, “The Arbitration between the United Kingdom and France Concerning the Continental Shelf Boundary in the English Channel and South-Western Approaches,” *British Yearbook of International Law* 49, No. 1 (January 1, 1979): 1–29. See also, Robert Beckman and Clive Schofield, “Moving Beyond Disputes Over Island Sovereignty: ICJ Decision Sets Stage for Maritime Boundary Delimitation in the Singapore Strait,” *Ocean Development & International Law* 40, No. 1 (February 17, 2009): 1–35; Clive Schofield and Dustin Kuan-Hsiung Wang, “The Regime of Islands under UNCLOS. Implications for the South China Sea,” in *Maritime Energy Resources in Asia: Legal Regimes and Cooperation*, ed. Clive Schofield, NBR Special Report 37 (Seattle: The National Bureau of Asian Research, 2012), 61–77.

⁵⁴ See, Article 121(2) and (3) of UNCLOS. See, on the interpretation of this provision, Yann-Huei Song, “Chapter 4. Article 121(3) of the Law of the Sea Convention and the Disputed Offshore Islands in East Asia: A Tribute to Judge Choon-Ho Park,” in *Governing Ocean Resources*, ed. Jon M. van Dyke et al. (Brill | Nijhoff, 2013), 61–98.

⁵⁵ *Case concerning the delimitation of continental shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic*, Decision of June 30, 1977, para. 184.

⁵⁶ *Case Concerning Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, Judgment, paras. 180, 184 and 187. See, also, *Territorial and Maritime Dispute (Nicaragua v. Colombia)*, Judgment, para. 180; *Aegean Sea Continental Shelf*, Judgment, I.C.J. Reports 1978, para. 83; *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, Judgment, paras. 191–195, 201 and 219.

However, in the South China Sea arbitration, the arbitral tribunal found that, after reviewing the status of features in the South China Sea, there are no islands in the disputed maritime area within the meaning of Article 121 of UNCLOS. Specifically, the arbitral tribunal held that the high-tide features at Scarborough Shoal, Johnson Reef, Cuarteron Reef, Fiery Cross Reef, Gaven Reef (North), and McKennan Reef are rocks and that Mischief Reef, Second Thomas Shoal, and Subi Reef are low tide elevations that do not constitute separate marine zones and are part of the EEZ and continental shelf of the Philippines.⁵⁷ The arbitral tribunal also sought to clarify the meaning of Article 121(3) of UNCLOS.⁵⁸

Other relevant aspects of the award concern the arbitral tribunal's conclusion that China's claim to the *nine-dash line* in the South China Sea, which includes most of the disputed areas and features in that region, and China's claim to historic rights in the maritime areas of the South China Sea have no basis in international law.⁵⁹ As several authors have noted, while China has always made a historic claim to sovereignty over all the features in the South China Sea, this does not mean that it consequently makes a historic claim to all waters in the South China Sea.⁶⁰ The arbitral tribunal further concluded that:

- (i) China's activities in the South China Sea interfered with the rights of the Philippines in its EEZ and continental shelf;⁶¹
- (ii) China aggravated the dispute, namely by failing to prevent Chinese nationals from exploiting the Philippines' living resources;⁶²
- (iii) China unlawfully prevented Filipino fishermen from traditional fishing at Scarborough Shoal;⁶³

⁵⁷ *The Republic of Philippines v. The People's Republic of China*, Award, paras. 368, 383–384, 643–647 and 750.

⁵⁸ *The Republic of Philippines v. The People's Republic of China*, paras. 279–553.

⁵⁹ *The Republic of Philippines v. The People's Republic of China*, paras. 169–278.

⁶⁰ Robert Beckman, "International Law, UNCLOS and the South China Sea," in *Beyond Territorial Disputes in the South China Sea*, ed. Robert Beckman et al. (Edward Elgar Publishing, 2013), 62." See also, Clive R. Symmons, "Chapter 3: Maritime Zones from Islands and Rocks," in *The South China Sea Disputes and Law of the Sea*, ed. S. Jayakumar, Tommy Koh, and Robert Beckman (Edward Elgar Publishing, 2014), 55–120; Ted L. McDorman, "Rights and Jurisdiction over Resources in the South China Sea: UNCLOS and the 'Nine-Dash Line,'" in *The South China Sea Disputes and Law of the Sea*, by S. Jayakumar, Tommy Koh, and Robert Beckman (Edward Elgar Publishing, 2014), 144–63.

⁶¹ *The Republic of Philippines v. The People's Republic of China*, Award, para. 716.

⁶² *The Republic of Philippines v. The People's Republic of China*, para. 757.

⁶³ *The Republic of Philippines v. The People's Republic of China*, para. 814.

- (iv) The construction of artificial islands by China is in breach of its obligations to protect and preserve the marine environment,⁶⁴ as well as the rights of the Philippines in its EEZ and continental shelf;⁶⁵
- (v) China's law enforcement operations at sea threatened the safety of navigation;⁶⁶
- (vi) China's actions during the arbitral proceedings aggravated or extended the dispute;⁶⁷ and
- (vii) China has breached its obligations as provided in Articles 279, 296 and 300 of UNCLOS.

4. Moving beyond the 2016 Arbitral Award

Since the issuance of the arbitral award on July 12, 2016, and especially due to the ensuing change in the political situation in the Philippines and President Rodrigo Duterte's State visit to China at the invitation of President Xi Jinping, the two States have sought rapprochement, which has resulted in side-tracking the outcome of the arbitration altogether.⁶⁸

Following the visit, Chinese authorities allowed Filipino fishermen to fish in the waters around Scarborough Shoal—Huangyan Dao in Chinese and Panatag Shoal or Bajo de Masinloc in Filipino⁶⁹—which had been one of the contentious issues between the two States that had prompted the Philippines to initiate the arbitration in the first place and that was addressed by the arbitral tribunal. However, this is mainly a goodwill gesture on the part of China and not a recognition by China of the rights of Filipino fishermen. Therefore, with decreasing tensions in China-Philippines relations and improving cooperation and exchanges between the two States, there may be a real prospect for these countries to seek legal alternatives that would allow for the implementation of a constructive *modus vivendi* in the South China Sea.

⁶⁴ *The Republic of Philippines v. The People's Republic of China*, paras. 992 and 993.

⁶⁵ *The Republic of Philippines v. The People's Republic of China*, para. 1043.

⁶⁶ *The Republic of Philippines v. The People's Republic of China*, para. 1109.

⁶⁷ *The Republic of Philippines v. The People's Republic of China*, para. 1181.

⁶⁸ Ministry of Foreign Affairs of the People's Republic of China, "Joint Statement of the People's Republic of China and the Republic of the Philippines," October 21, 2016, https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/201610/t20161021_679488.html.

⁶⁹ Ministry of Foreign Affairs of the People's Republic of China, "Foreign Ministry Spokesperson Hua Chunying's Regular Press Conference on October 31, 2016," October 31, 2016, https://www.fmprc.gov.cn/nanhai/eng/fyrbt_1/201605/t20160531_8525436.htm.

UNCLOS does not include specific provisions on disputed maritime areas or territorial disputes regarding islands and other offshore features. It does, however, contain rules for when States fail to agree on the delimitation of maritime boundaries. In line with these rules, it has been widely recognized that joint development offers a suitable legal solution for the South China Sea, especially since this alternative allows coastal States to lawfully develop resources in disputed maritime areas without affecting their respective claims. Furthermore, joint development has the advantage for States to save face, which is also extremely relevant in the overall context of the Asia-Pacific region. Still, it should be noted that coastal States in the South China Sea have often refused, rejected or ignored attempts to settle their maritime disputes, mostly due to a lack of trust or political will to negotiate and end disputes.⁷⁰

C. “To close, or not to close the Turkish Straits, that is the question”⁷¹

1. The 2022 Russian military intervention in Ukraine

The Black Sea is a closed sea connected to the Mediterranean Sea by the Turkish Straits—the Dardanelles, the Sea of Marmara and the Bosphorus. Its control is one of the strategic goals of Russia’s military invasion of Ukraine in 2022, dating back to Russia’s annexation of Crimea in 2014 and the invasion of Georgia in 2008. As part of the broader spectrum of operations undertaken during the Russian military invasion of Ukraine in 2022, Russian forces have continuously besieged and shelled key Ukrainian port cities, including from offshore positions to secure access and military supremacy in the Black Sea.

⁷⁰ See, for an in-depth analysis of State practice in the South China Sea and the greater Asia-Pacific region, Vasco Becker-Weinberg, *Joint Development of Hydrocarbon Deposits in the Law of the Sea*, 2014, Hamburg Studies on Maritime Affairs, International Max Planck Research School for Maritime Affairs at the University of Hamburg 30 (Berlin, Heidelberg: Springer Berlin Heidelberg: Imprint: Springer, 2014), 144–65. See also, Robert Beckman, “The UN Convention on the Law of the Sea and the Maritime Disputes in the South China Sea,” *American Journal of International Law* 107, No. 1 (January 2013): 142–63; Clive Schofield, “What’s at Stake in the South China Sea? Geographical and Geopolitical Considerations,” in *Beyond Territorial Disputes in the South China Sea*, ed. Robert Beckman et al. (Edward Elgar Publishing, 2013), 11–46. See, on the political and diplomatic aspects of the maritime disputes in the South China Sea, Bill Hayton, *The South China Sea: The Struggle for Power in Asia* (New Haven: Yale University Press, 2014).

⁷¹ See, Nilüfer Oral, “To Close or Not to Close the Turkish Straits under Article 19 of the 1936 Montreux Convention Regarding the Regime of the Straits,” <https://cil.nus.edu.sg/> (blog), accessed March 31, 2023, <https://cil.nus.edu.sg/to-close-or-not-to-close-the-turkish-straits-under-article-19-of-the-1936-montreux-convention-regarding-the-regime-of-the-straits/>.

With the end of the Cold War, Bulgaria and Romania joined the European Union and NATO, while Ukraine and Georgia became independent States. Notwithstanding these fundamental geopolitical changes in the Black Sea, the nearly ninety-year-old Montreux Convention remains the legal background governing the Turkish Straits.⁷²

Following the beginning of the Russian military invasion of Ukraine in 2022, Ukraine asked Türkiye to close the Turkish Straits to Russian warships. Although initially hesitant, Türkiye eventually recognized the state of war between Russia and Ukraine, which immediately raised the question of whether Türkiye would comply with Ukraine's request. Eventually, Türkiye decided to do so.

Although the closure of the Turkish Straits to Russian warships was initially perceived as having a potential impact on the Russian war effort, and notwithstanding the geopolitical significance of the decision, it is quite likely that it will have no real impact, given the legal provisions that apply to the Turkish Straits.

2. Straits used for international navigation

Under international law, there are different types of international straits, and not all are subject to the rules embodied in UNCLOS. Notwithstanding the fact that Türkiye is not a State party to UNCLOS and the customary nature of the rules applicable to straits,⁷³ the Turkish Straits are not subject to the provisions of Part III of UNCLOS, but to the Montreux Convention. This is the result of the exception under which Part III does not apply to straits "in which passage is regulated in whole or in part by long-standing international conventions in force specifically relating to such straits."⁷⁴ For this exception to apply, four conditions must be met:

⁷² See, on the legal and geopolitical background of the Black Sea, Nilüfer Oral, "Ukraine v. The Russian Federation: Navigating Conflict over Sovereignty under UNCLOS," *International Law Studies* 97 (2021): 478–508.

⁷³ In *Corfu Channel*, the ICJ stated that

[i]t is, in the opinion of the Court, generally recognized and in accordance with international custom that States in time of peace have a right to send their warships through straits used for international navigation between two parts of the high seas without the previous authorization of a coastal State, provided that the passage is innocent. Unless otherwise prescribed in an international convention, there is no right for a coastal State to prohibit such passage through straits in time of peace.

Corfu Channel (United Kingdom v. Albania), *Merits, Judgment*, I.C.J. Reports 1949, p. 28.

⁷⁴ See, Article 35(c) of UNCLOS.

- (i) A treaty concerning passage,
- (ii) in a strait in whole or part;
- (iii) The treaty must be long-standing and in force; and
- (iv) The treaty must be specifically relating to such straits;⁷⁵

This is the case of the Montreux Convention, which provides a special regime for the Turkish Straits and acts as a *lex specialis* with respect to UNCLOS.⁷⁶

Albeit the Turkish Straits are not covered by UNCLOS, it is important to recall that the progressive development and codification of the international rules applicable to straits in Part III of the Convention was the outcome of a compromise between the interests of States bordering straits and those of third States in ensuring the passage of foreign warships. The *new* regime of transit passage in Part III of UNCLOS refers to the movement of a foreign vessel through international straits to gain access to the high seas or the EEZ.⁷⁷

Although Part III of UNCLOS does not expressly mention the law enforcement powers of States bordering straits, this is a matter that must be considered in light of two distinct interests. One is the interest of States bordering straits and the other is the interest in the *internationalization of the straits*.⁷⁸ While third States would not want passage to be impeded, States bordering straits may want to increase control and safeguard their own security and other concerns regarding the passage

⁷⁵ See, on the regime of international straits in UNCLOS, Yoshifumi Tanaka, *The International Law of the Sea*, 3rd ed. (Cambridge University Press, 2019), 116–31, <https://www.cambridge.org/core/product/identifier/9781108545907/type/book>. See also, Jia Bing Bing, “Commentaries to Articles 34 to 45,” in *United Nations Convention on the Law of the Sea: A Commentary*, ed. Alexander Proelss et al. (München, Germany : Oxford, United Kingdom : Baden-Baden, Germany: C.H. Beck ; Hart ; Nomos, 2017), 272–333; Edward L. Miles, *Global Ocean Politics: The Decision Process at the Third United Nations Conference on the Law of the Sea 1973–1982* (Conference on the Law of the Sea, TheHague: Nijhoff, 1998), 70, 89–90, 165–69, 203–4, 237 and 242.

⁷⁶ See, Oral, “Ukraine v. The Russian Federation: Navigating Conflict over Sovereignty under UNCLOS.” See also, Hugo Caminos and Vincent P. Cogliati-Bantz, *The Legal Regime of Straits: Contemporary Challenges and Solutions* (Cambridge, United Kingdom: Cambridge University Press, 2014), 16, 79–81 and 385; Yüksel İnan, “Chapter 9: The Turkish Straits and the Legal Regime of Passage,” in *Navigating Straits*, ed. David D. Caron and Nilufer Oral (Brill | Nijhoff, 2014), 199–219.

⁷⁷ See, Article 37 of UNCLOS. See also, Article 38(2) of UNCLOS, which reads:
[...] transit passage means the exercise in accordance with this Part of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of the strait between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone. However, the requirement of continuous and expeditious transit does not preclude passage through the strait for the purpose of entering, leaving or returning from a State bordering the strait, subject to the conditions of entry to that State.

⁷⁸ Natalie Klein, *Maritime Security and the Law of the Sea* (Oxford University Press, 2011), 84–87.

of foreign vessels near their coasts, such as intelligence gathering, prevention of criminal activity, or protection and preservation of the marine environment.⁷⁹ It is not surprising, therefore, that the right of passage for naval forces through straits has always been of great importance, especially in times of crisis.

The applicable rules of Part III of UNCLOS are the outcome of a compromise reached in negotiations between the States bordering straits and the *maritime powers of the time*. This compromise is reflected in several provisions of Part III of UNCLOS and, in particular, in its Article 45, which provides that

States bordering straits shall not hamper transit passage and shall give appropriate publicity to any danger to navigation or overflight within or over the strait of which they have knowledge. *There shall be no suspension of transit passage.*⁸⁰

3. The Montreux Convention

Nearly nine decades after it was signed and entered into force—in the aftermath of the Second World War and during the Cold War—it is clear that the Montreux Convention has stood the test of time and avoided, the militarization of the Turkish Straits to some degree. The Montreux Convention is now being put to the test again, this time in the context of Russian military intervention in Ukraine in 2022.

The Montreux Convention states that the parties “[...] recognise and affirm the principle of freedom of transit and navigation by sea in the Straits.”⁸¹ However, the Montreux Convention clearly distinguishes between the situation in which it is applied in peacetime or in wartime,⁸² and within the latter, whether Türkiye is a belligerent part or not.⁸³ If Türkiye is not belligerent, warships are subject to peacetime regulations.⁸⁴ If, on the other hand, Türkiye is belligerent, “the passage

⁷⁹ Klein, 26–27 and 216–17.

⁸⁰ Emphasis added.

⁸¹ See, Article 1 of the Montreux Convention.

⁸² See, Articles 5 and 20 of the Montreux Convention.

⁸³ See, Articles 2, 3 and 18 of the Montreux Convention. Non-Black Sea military vessels are subject to restrictions on the basis of type of vessel, total tonnage, mode of passage, use of aircraft during transit, notification requirements, and duration. See also, Articles 4 and 19 of the Montreux Convention.

⁸⁴ See, Article 8 of and Annex II to the Montreux Convention, which defines *vessels of war*. Article 19 of UNCLOS defines *warship* as a

ship belonging to the armed forces of a State bearing the external marks distinguishing such ships of its nationality, under the command of an officer duly commissioned by the government

of warships shall be left entirely to the discretion of the Turkish Government.”⁸⁵ The Montreux Convention further refers to those situations in which Türkiye considers itself to be under imminent threat of war. In these circumstances, Türkiye also has full authority. It should be noted, however, that it is up to Türkiye to assess the level of threat and danger.⁸⁶

Likewise, the Montreux Convention neither defines the term *belligerent*,⁸⁷ nor does it require a declaration of war. If Türkiye does not consider itself in imminent danger of war, there is no reason to close the Straits to Russian warships unless a state of war between Russia and Ukraine is recognized and Russia is classified as a belligerent power. Under these circumstances, and if Türkiye is not a belligerent power, navigation through the Straits can be subject to Article 19 of the Montreux Convention. Accordingly, in the context of the Russian military invasion of Ukraine in 2022, Russian warships would not be able to pass through the Turkish Straits, but would be able to do so without giving up the opportunity to return to their base if separated from it. This right of return would apply only to warships belonging to bases in the Black Sea.

4. Türkiye and the 2022 Russian military intervention in Ukraine

Russia did not declare war before or after the invasion of Ukraine on February 24, 2022. The Russian version of events states that its forces did not invade Ukrainian territory but engaged in military activities as part of a

of the State and whose name appears in the appropriate service list or its equivalent, and manned by a crew which is under regular armed forces discipline.

⁸⁵ See, Article 20 of the Montreux Convention.

⁸⁶ See, Article 21 of the Montreux Convention.

⁸⁷ See, *Regulations Respecting the Laws and Customs of War on Land* annexed to the *Fourth Hague Convention of 18 October 1907*, January 26, 1910, 205 C.T.S. 277. On the qualifications of belligerents, Article 1 of the Hague Regulations determines that

[t]he laws, rights, and duties of war apply not only to armies, but also to militia and volunteer corps fulfilling the following conditions: (1) To be commanded by a person responsible for his subordinates; (2) To have a fixed distinctive emblem recognizable at a distance; (3) To carry arms openly; and (4) To conduct their operations in accordance with the laws and customs of war. In countries where militia or volunteer corps constitute the army, or form part of it, they are included under the denomination ‘army.’

See also, *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, Advisory Opinion, I.C.J. Reports 2004, p. 136. The ICJ recognized in this case the provisions of the Hague Regulations have become part of customary law (at p. 171, para. 89). See also, James Crawford, *Brownlie’s Principles of Public International Law*, 9th ed. (Oxford University Press, 2019), 731–36.

special military operation. This was an unsuccessful attempt by Russia not to comply with international legal rules. Ukraine also did not make a formal declaration of war, although Ukrainian officials, including President Volodymyr Zelenskyy, referred to the invasion and war with Russia in several public statements.

On the same day that the Russian invasion of Ukraine began, President Zelenskyy called on the Turkish Government to close the Turkish Straits calling for the application of the Montreux Convention.⁸⁸ The Turkish initial response was not in favor of closing the Turkish Straits to Russian warships, although Türkiye announced the use of Article 19 of the Montreux Convention on February 28, 2022.⁸⁹

Türkiye considers the Russian military intervention in Ukraine unacceptable and vehemently rejects it.⁹⁰ In the same year, on the occasion of the eighth anniversary of the annexation of Crimea, Türkiye reiterated that its country and the international community do not recognize the annexation and consider it a clear violation of international law. Türkiye also reaffirmed its support for Ukraine's sovereignty and territorial integrity and explicitly referred to it as one of Türkiye's strategic partners.⁹¹

⁸⁸ See, Article 19 of the Montreux Convention, which reads as follows:

[v]essels of war belonging to belligerent Powers shall not, however, pass through the Straits except in cases arising out of the application of Article 25 of the present Convention, and in cases of assistance rendered to a State victim of aggression in virtue of a treaty of mutual assistance binding Turkey, concluded within the framework of the Covenant of the League of Nations, and registered and published in accordance with the provisions of Article 18 of the Covenant.

Article 19 of the Montreux Convention provides that if Türkiye is not belligerent, warships shall enjoy the rights of passage under Articles 10 to 18, which establish the conditions of notification, tonnage, type of vessel, and other requirements as preconditions for passage through the Straits.

⁸⁹ "Türkiye Warns All Countries against Warships Going through Turkish Straits," February 22, 2022, <https://www.aa.com.tr/en/russia-ukraine-crisis/turkiye-warns-all-countries-against-warships-going-through-turkish-straits/2518827>.

⁹⁰ Ministry of Foreign Affairs of the Republic of Türkiye, "No: 62, 24 February 2022, Press Release Regarding the Russian Federation's Military Operation Against Ukraine," 2022, https://www.mfa.gov.tr/no_-62_-rusya-federasyonu-tarafindan-ukrayna-ya-yonelik-baslatilan-askeri-operasyon-hk.en.mfa.

⁹¹ Ministry of Foreign Affairs of the Republic of Türkiye, "No: 88, 16 March 2022, Press Release Regarding the Eighth Anniversary of the Illegal Annexation of Crimea," March 16, 2022, https://www.mfa.gov.tr/no_-88_-kirim-in-yasadisi-ilhakinin-sekizinci-yildonumu-hk.en.mfa.

D. Conclusion

This chapter has examined two important case studies in which States have faced obligations to uphold the rule of law at sea in difficult times, but have taken very different approaches. In the *South China Sea case*, China's position of non-acceptance, non-participation, and non-compliance has resulted in the award being directly ineffective against China, although this has no bearing on the legally binding nature of the arbitral award itself. Although China has indeed decided not to comply with the award on the merits, China does not ignore the outcome of the arbitration. Moreover, the implications of the award go far beyond the *South China Sea case*. Indeed, the assessments made by the arbitral tribunal clarify the legal consistency—or lack thereof—of the claims made by the States concerned, as well as the legal status of the offshore features located in the disputed maritime area and the maritime zones these can project. It is also noteworthy that the award in this case is the first attempt by an international court or tribunal to clarify the interpretation and application of Article 121(3) of UNCLOS. Perhaps, it can help other States in the South China Sea and beyond in the region with many of their respective maritime claims and facilitate the identification of potential maritime areas where provisional arrangements, such as joint development regimes, can be implemented. Another relevant contribution made by the arbitral proceedings was the confirmation of what are some of the most important States obligations in disputed maritime areas, particularly regarding the protection and the preservation of the marine environment, and what are the rights of the Philippines in certain maritime areas, such as fishing rights in the area surrounding the Scarborough Shoal.

Notwithstanding, with decreasing of tensions and the rapprochement between the Philippines and China, these States have created an opportunity to seek cooperation and refrain from the entrenchment in national rhetoric and the adoption of hostile actions that are contrary to international law and in particular the rule of law at sea. In this regard, some of the possible cooperative actions might very well reflect all or part of the assessments made by the arbitral tribunal. It remains to be seen if this will be the case and what are the longstanding consequences of this approach, particularly for the reinforcement of the rule of law at sea.

The second case study examined in this chapter focused on the issues concerning international navigation in the Black Sea, against the background of the Russian military intervention in Ukraine in 2022. The Turkish Straits are of strategic and vital importance for Türkiye, but also for coastal States of the Black Sea and, in a wider perspective, for the whole international community. Consequently, the application of the Montreux Convention during wartime is a delicate matter. This has proven to be the case over the many years during which the Montreux Convention has been in force and so is the case now.

On February 28, 2022, four days after the start of the 2022 Russian military intervention in Ukraine, the Turkish Government considered that Russia's invasion of Ukraine triggered Article 19 of the Montreux Convention, treating Russia as a belligerent power. This would not, however, hinder the right of return of Russian warships to their bases, but only prevent the passage of those that are not based in the Black Sea. Moreover, Russia being a coastal State of the Black Sea cannot be limited in the time that Russian warships spend in the Black Sea.

Yet, although applying Article 19 of the Montreux Convention and consequently closing the Turkish Straits to Russian warships may seem somewhat ineffective, the decision has a significant geopolitical meaning, namely in the context of the bilateral relation between Türkiye and Russia. Moreover, this measure would not affect the passage of warships belonging to non-belligerent powers. These would also include warships belonging to NATO forces—including those of Türkiye—and other States that have provided aid to Ukraine during the Russian military intervention. The apparent conclusion is that under the Montreux Convention there are limited options for Türkiye, while remaining non-belligerent and outside considering itself threatened with imminent danger of war. Therefore, the decision to close the Turkish Straits constitutes an adequate interpretation and application of the Montreux Convention in light of the 2022 Russian military invasion of Ukraine.

In both the South China Sea and Black Sea cases, international law and in the particular the rule of law at sea have been put to the test. In the two cases, the challenges facing the implementation of international law and its effectiveness have been great. However, it is also in such difficult times that the resilience of international law can be seen and must ultimately prevail. It remains to be seen if this will be the case of the South China Sea and the Black Sea.

PART II |

THE SUSTAINABLE DEVELOPMENT OF THE OCEAN AND ENVIRONMENTAL ACCOUNTABILITY

CHAPTER 5 |

ACHIEVING SUSTAINABLE DEVELOPMENT GOAL 14: THE CONTRIBUTIONS OF THE UNITED NATIONS OFFICE OF LEGAL AFFAIRS

Miguel de Serpa Soares*

A. Introduction

As I looked around the Plenary Hall in Lisbon at the opening ceremony of the 2022 United Nations Ocean Conference in June of last year, I was struck by how the global sentiment around the state of the ocean—and the world—had changed since the previous Conference took place in New York, five years prior. The goal of the Conference, namely to support the implementation of *Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development*, remained the same.¹ So did the commitment to the ocean of the thousands of delegates from Member States and intergovernmental organizations, as well as the representatives from civil society entities, the scientific community and the private sector, who had taken up the invitation by co-hosts Portugal and Kenya to discuss the ocean's future under the theme “Scaling up ocean action based on science and innovation for the implementation of Goal 14: Stocktaking, partnerships and solutions.”²

However, in the past five years, the sense of urgency has grown. All the targets of Goal 14 that were set to mature in 2020 were missed.³ A series of reports by

* This article is presented in the personal capacity of the author and the views expressed herein are his and do not necessarily reflect the views of the United Nations. The author also wishes to acknowledge and thank the contributions of the staff of DOALOS and Alejandro Sousa for the preparation of this work.

¹ See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

² See, for the programme and documentation of the 2022 United Nations Ocean Conference, United Nations, “2022 United Nations Ocean Conference. Programme and Documentation,” <https://www.un.org/>, accessed December 13, 2022, <https://www.un.org/en/conferences/ocean2022>.

³ M. Andriamahefazafy et al., “Sustainable Development Goal 14: To What Degree Have We Achieved the 2020 Targets for Our Oceans?,” *Ocean & Coastal Management* 227 (106273) (August 2022): 1.

intergovernmental scientific bodies has painted an alarming picture of the state of the ocean and the life it sustains.⁴ The effects of years of human activities, including resulting degradation and pollution, are felt worldwide.⁵ Moreover, the coronavirus disease (Covid-19) pandemic has shown how vulnerable those whose livelihoods depend on the ocean are to unanticipated shocks, particularly in least developed countries and small island developing States.⁶ The ocean is at a critical juncture, and the urgency and momentum were palpable as delegates sought their seats in the Altice Arena. The feeling was aptly captured in words by Secretary-General António Guterres, when he pointed out in his opening statement that we are facing an “Ocean Emergency,”⁷ a warning that Member States echoed in the political declaration *Our ocean, our future, our responsibility*, also known as the *Lisbon Declaration*, adopted at the Conference’s closing.⁸

This warning should not have come as a surprise to those gathered in Lisbon. The United Nations has repeatedly urged States and others to address head-on the triple planetary crisis of climate change, pollution, and biodiversity loss;⁹

⁴ See, IPCC, *The Ocean and Cryosphere in a Changing Climate: Special Report of the Intergovernmental Panel on Climate Change*, ed. H.-O. Pörtner et al., 1st ed. (Cambridge University Press, 2022), <https://www.cambridge.org/core/product/identifier/9781009157964/type/book>; Intergovernmental Science-Policy Platform On Biodiversity And Ecosystem Services, “Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services” (Zenodo, November 25, 2019), Special Report on the Ocean; United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, United Nations, vol. I, II vols. (New York: United Nations, 2021); United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, United Nations, vol. II, II vols. (New York: United Nations, 2021).

⁵ See, for an overview of the situation and effects linked to the targets of Goal 14, United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, 2021, I:5–23.

⁶ Economic and Social Council, *Ministerial declaration of the high-level segment of the 2022 session of the Economic and Social Council and the 2022 high-level political forum on sustainable development, convened under the auspices of the Council, on the theme “Building back better from the coronavirus disease (COVID-19) while advancing the full implementation of the 2030 Agenda for Sustainable Development”*, E/HLS/2022/1 (August 15, 2022), p. 14, para. 55, available at undocs.org/en/E/HLS/2022/1.

⁷ Secretary-General of the United Nations, “UN Secretary-General’s Opening Remarks to United Nations Ocean Conference” (United Nations Ocean Conference, Lisbon, 2022), <https://www.un.org/sg/en/content/sg/statement/2022-06-27/un-secretary-generals-opening-remarks-united-nations-ocean-conference-delivered>.

⁸ United Nations, *Our ocean, our future, our responsibility*, A/CONF.230/2022/12 (June 17, 2022), available at undocs.org/en/A/CONF.230/2022/12, p. 7, para. 4, noting that the drafters of the declaration are “[...] deeply alarmed by the global emergency facing the ocean.” See also, Economic and Social Council, *Ministerial declaration of the high-level segment of the 2022 session of the Economic and Social Council and the 2022 high-level political forum on sustainable development, convened under the auspices of the Council, on the theme “Building back better from the coronavirus disease (COVID-19) while advancing the full implementation of the 2030 Agenda for Sustainable Development”*, p. 14, para. 54.

⁹ See, for example, United Nations Climate Change United Nations, “What Is the Triple Planetary Crisis?”, 2022, <https://unfccc.int/blog/what-is-the-triple-planetary-crisis>.

or, in the words of the Secretary-General of the United Nations, to “[...] end our senseless and suicidal war against nature.”¹⁰ Indeed, after years of taking the ocean for granted, we have come to realize that we cannot have a healthy planet without a healthy ocean. The ocean generates half of Earth’s oxygen, thus providing every second breath we take.¹¹ Many rely on the ocean for food and nutrition, with marine fisheries providing the primary source of protein to over half of those living in least developed countries.¹² The livelihoods of millions of people depend on the ocean, with the fishing industry alone employing fifty-seven million people globally, and 80% of all tourism taking place in coastal areas.¹³ In addition, the ocean provides many ecosystem services, the economic value of which is hard to express in numbers, but which are critical to life on Earth. The ocean provides a habitat to much of the world’s biodiversity and plays an essential role in our climate system and water cycle.¹⁴ It has absorbed more than 90% of the excess heat entering the climate system as a result of human-induced global warming,¹⁵ and captures about 25% of all carbon emissions, effectively serving as the globe’s largest carbon sink.¹⁶ *Finally*, coastal features such as coral reefs, mangrove forests and oyster banks protect coasts from erosion and flood damage by reducing wave heights and strength, mitigating the worst effects of sea level rise and extreme weather events caused by rising global temperatures.¹⁷

¹⁰ Secretary-General of the United Nations, “Secretary-General’s Remarks to Stockholm+50 International Meeting” (Stockholm+50 international meeting, Stockholm, Sweden, 2022), <https://www.un.org/sg/en/content/sg/statement/2022-06-02/secretary-generals-remarks-stockholm50-international-meeting-delivered>.

¹¹ United Nations, “Lungs of Our Planet,” *United Nations- Lungs of Our Planet* (blog), n.d., <https://news.un.org/pages/lungs-of-our-planet/>.

¹² “Latest Ocean Data,” *United Nations* (blog), 2022, <https://www.un.org/en/conferences/ocean2022/facts-figures>.

¹³ “Latest Ocean Data.”

¹⁴ United Nations, *Our ocean, our future, our responsibility*, p. 7, para. 4.

¹⁵ IPCC, “Summary for Policymakers,” in *The Ocean and Cryosphere in a Changing Climate: Special Report of the Intergovernmental Panel on Climate Change*, ed. H.-O. Pörtner et al., 1st ed. (Cambridge University Press, 2022), 9, <https://www.cambridge.org/core/product/identifier/9781009157964/type/book>.

¹⁶ United Nations Climate Change, “The Ocean,” accessed December 12, 2022, <https://unfccc.int/topics/ocean>.

¹⁷ The Nature Conservancy, “Coastal Protection,” <https://oceanwealth.org>, accessed December 12, 2022, <https://oceanwealth.org/ecosystem-services/coastal-protection/>. See also, IPCC, *The Ocean and Cryosphere in a Changing Climate*, 13 and 26.

B. Sustainable Development Goal 14 and Its Targets

Conserving and sustainably using the oceans, seas and marine resources for sustainable development are thus crucial for life both below and above water. World leaders agreed in 2015, in this respect, to focus their efforts on ten targets for Goal 14, which are part of a “comprehensive, far-reaching and people-centred set of universal and transformative Goals and targets” to be implemented by “[a]ll countries and all stakeholders, acting in collaborative partnership” in order to stimulate action in areas of critical importance for humanity and the planet.¹⁸

A closer analysis of Goal 14 reveals that, while some of its targets are outcome-focussed and directly address the triple crisis identified above, others relate to means of implementation. For instance, target 14.1 aims at preventing and significantly reducing marine pollution of all kinds by 2025, in particular from land-based activities, including marine debris and nutrient pollution.¹⁹ An estimated 85% of marine litter is made up of plastics, with the volume of plastics entering the ocean expected to double or even triple by 2040.²⁰ Another perhaps less well-known cause for concern is pollution from nutrient run-off, which causes excessive algae growth that leaves insufficient oxygen in the water for other marine life.²¹ This creates so-called *dead zones*, which are reported to have nearly doubled in the past decade.²² While turning the tide of marine pollution seems difficult, a breakthrough was achieved in March 2022, when the United Nations Environmental Assembly decided to commence negotiations to develop an international legally binding instrument to address plastic pollution, including in the marine environment.²³ An Intergovernmental Negotiating

¹⁸ General Assembly resolution 70/1, *Transforming Our World: the 2030 Agenda for Sustainable Development*, A/RES/70/1 (October 21, 2015), pp. 1 and 3, para. 2 and preamble respectively, available at undocs.org/en/A/RES/70/1.

¹⁹ The full text of target 14.1 is: “By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.” See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development”

²⁰ United Nations, “The Sustainable Development Goals Report-2022,” 2022, 54, <https://unstats.un.org/sdgs/report/2022/The-Sustainable-Development-Goals-Report-2022.pdf>.

²¹ This is often referred to as “eutrophication.” See, UNESCO-IOC, “The Ocean Is Losing Its Breath: Declining Oxygen in the World’s Ocean and Coastal Waters; Summary for Policy Makers” (Paris: UNESCO, 2018), 13, <https://unesdoc.unesco.org/ark:/48223/pf0000265196>.

²² United Nations, “The Sustainable Development Goals Report-2022,” 54.

²³ United Nations Environment Assembly of the UNEP, *Nature-based solutions for supporting sustainable development*, UNEP/EA.5/Res.5 (March 7, 2022), p. 2, paras. 1 and 3, available at undocs.org/en/UNEP/EA.5/Res.5.

Committee is being convened and will hold its first session in November 2022, with the aim of concluding an instrument that will address the full life cycle of plastic by 2024.²⁴ My office is cooperating closely with our colleagues at the United Nations Environment Programme to make more sustainable production and consumption of plastics a reality.

Confronting marine pollution is a crucial element in achieving target 14.2, namely to sustainably manage and protect marine and coastal ecosystems by 2020, to avoid significant adverse impacts.²⁵ Marine and coastal ecosystems also face adverse impacts from climate change—rising sea levels can cause salinity intrusion and coastal erosion while rising water temperatures make waters uninhabitable for certain species.²⁶ It is now widely recognized, as evidenced in the Lisbon Declaration, that solutions to address these issues, such as integrated coastal zone management and marine spatial planning, should be in line with the precautionary and ecosystem-based approaches.²⁷

The continued rise in global greenhouse gas emissions and resulting intake of carbon by the ocean further undermine efforts to minimize and address the impacts of ocean acidification, the aim of target 14.3.²⁸ Ocean acidification changes the chemical balance of the ocean and makes it harder for marine

²⁴ United Nations Environment Assembly of the UNEP. See, UNEP, “Intergovernmental Negotiating Committee to Develop an International Legally Binding Instrument on Plastic Pollution, Including in the Marine...,” <https://www.unep.org>, accessed December 12, 2022, <https://www.unep.org/events/conference/inter-governmental-negotiating-committee-meeting-inc-1>.

²⁵ The full text of target 14.2 is:

By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

²⁶ Intergovernmental Panel on Climate Change, *Summary for Policymakers, in Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), 12–13. See also, General Assembly resolution 75/70, *Report of the Secretary-General on Oceans and the law of the sea*, A/75/70 (March 16, 2020), available at undocs.org/en/A/75/70. This report was prepared in advance of the twenty-first meeting of the United Nations Open-Ended Informal Consultative Process on Oceans and the Law of the Sea on the theme *Sea-level rise and its impacts*, particularly Part II(B).

²⁷ See, United Nations, *Our ocean, our future, our responsibility*, pp. 4–5, para. 13. See also, Economic and Social Council, *Ministerial declaration of the high-level segment of the 2022 session of the Economic and Social Council and the 2022 high-level political forum on sustainable development, convened under the auspices of the Council, on the theme “Building back better from the coronavirus disease (COVID-19) while advancing the full implementation of the 2030 Agenda for Sustainable Development”*, pp. 15–16, para. 63.

²⁸ The full text of target 14.3 is: “Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels.” See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

organisms dependent on calcium structures, such as shellfish, corals and crustaceans, to survive.²⁹ This is another way in which climate change is having devastating effects on our ocean and marine life. However, I am encouraged by increasing recognition of the relationship between the ocean and climate change. The Glasgow Climate Pact—adopted at the twenty-sixth Conference of the Parties to UNFCCC—invited UNFCCC bodies and work programmes “[...] to consider how to integrate and strengthen ocean-based action in their existing mandates and workplans and to report on these activities within the existing reporting processes.”³⁰ The Pact also established the Ocean and Climate Change Dialogue, the first of which took place in 2020, as an annual event.³¹ The Dialogue will serve as a regular “[...] stepping stone to greater ambition and action” for ocean-related climate action at the national and international levels.³²

Concerns surrounding the conservation and sustainable use of marine living resources and biodiversity loss are central to targets 14.4 and 14.6, which focus on marine fisheries. While target 14.4 sought to effectively regulate harvesting and end overfishing, IUU fishing and destructive fishing practices by 2020,³³ more than a third of global fish stocks remain overfished.³⁴ Improvements in regulation and monitoring, control and surveillance have slowed the rate of decline, but the implementation of such measures remains slow, particularly in developing countries.³⁵ The pressure on global fish stocks is exacerbated by certain forms of

²⁹ United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 3 at the 2022 United Nations Ocean Conference: Minimizing and addressing ocean acidification, deoxygenation and ocean warming*, A/CONF.230/2022/11 (April 29, 2022), p. 3, available at undocs.org/en/A/CONF.230/2022/11.

³⁰ UNFCCC, *Report of the Conference of the Parties on its twenty-sixth session, held in Glasgow from 31 October to 13 November 2021*, FCCC/CP/2021/12/Add.1 (March 8, 2022), Decision 1/CP.26, Glasgow Climate Pact, p. 7, para. 60, available at https://unfccc.int/sites/default/files/resource/cp2021_12_add1E.pdf.

³¹ UNFCCC, p. 7, para. 61. See also generally, United Nations Climate Change, “The Ocean.”

³² See, United Nations Climate Change United Nations, “Bonn Dialogue Urges Ocean-Based Climate Action,” *United Nations-Climate Change* (blog), 2022, 22, <https://unfccc.int/news/bonn-dialogue-urges-ocean-based-climate-action>.

³³ The full text of target 14.4 is:

By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

³⁴ United Nations, “The Sustainable Development Goals Report-2022,” 55, fn.20; FAO, *The State of World Fisheries and Aquaculture 2022* (FAO, 2022), 46–47, <http://www.fao.org/documents/card/en/c/cc0461en>.

³⁵ United Nations, “The Sustainable Development Goals Report-2022,” 55.

fisheries subsidies which contribute to overcapacity and overfishing.³⁶ Target 14.6 had aimed at eliminating such subsidies by 2020.³⁷ While that timeline was missed, in June 2022, members of the World Trade Organization concluded a legally binding agreement that prohibits (i) subsidies contributing to IUU fishing, (ii) subsidies regarding overfished stocks, and (iii) subsidies provided to fishing or fishing-related activities in areas outside the jurisdiction of a State and the competence of a relevant regional fisheries management organization or arrangement (RFMO/A).³⁸ The agreement requires members to report on subsidies and measures taken and provides for the establishment of a Committee on Fisheries Subsidies, which will oversee implementation.³⁹ It also contains exemptions and specific provisions for developing countries, including least developed countries.⁴⁰ Members have agreed to keep negotiating on unresolved issues so as to reach a comprehensive agreement on fisheries subsidies.⁴¹

Target 14.5 sets a goal of conserving at least 10% of coastal and marine areas by 2020.⁴² Considerable progress has been made towards achieving this target through the designation of marine protected areas and other area-based management tools. Concerns remain, however, over the balance in geographical

³⁶ United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 4 at the 2022 United Nations Ocean Conference: Making fisheries sustainable and providing access for small-scale artisanal fishers to marine resources and markets*, A/CONF.230/2022/4 (April 29, 2022), p. 5, available at undocs.org/en/A/CONF.230/2022/4.

³⁷ The full text of target 14.6 is:

By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.”

See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

³⁸ World Trade Organization, *Agreement on Fisheries Subsidies. Ministerial Decision of 17 June 2022*, WT/MIN(22)/33 (June 22, 2022), Annex Agreement on Fisheries, Articles 3 to 5, available at <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN22/33.pdf&Open=True>.

³⁹ World Trade Organization, Articles 8–9 of the Annex Agreement on Fisheries.

⁴⁰ World Trade Organization, Articles 3.8, 4.4 and 6–7 of the Annex Agreement on Fisheries.

⁴¹ World Trade Organization, p. 1, para. 4.

⁴² The full text of target 14.5 is: “By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.” See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

spread of these measures.⁴³ Meanwhile, a goal to conserve at least 30% of ocean areas by 2030—for which many delegations in Lisbon expressed their support—has been included in a draft for a new global biodiversity framework that is being negotiated in the context of the CBD.⁴⁴ The draft framework, which would set out “[...] an ambitious plan to [...] bring about a transformation in society’s relationship with biodiversity and to ensure that, by 2050, the shared vision of living in harmony with nature is fulfilled”⁴⁵ will be considered by the fifteenth Conference of the Parties to the CBD in December 2022.⁴⁶

Achieving the targets mentioned above is essential to fulfilling the promise of target 14.7 to increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources by 2030.⁴⁷ Following its review of Goal 14 in July 2022, the High-level Political Forum on Sustainable Development acknowledged “the devastating impacts of the COVID-19 pandemic on the ocean-based economies, and in particular those of small island developing States,” and recognized that conservation and sustainable management of aquatic living resources as an effective strategy to *inter alia* boost economic growth and strengthen the resilience of livelihoods.⁴⁸

Goal 14 also highlights three means of implementation. Target 14.a acknowledges the need to increase scientific knowledge, develop research capacity and transfer

⁴³ United Nations, “The Sustainable Development Goals Report 2022, Extended Report for Goal 14,” 2022, 9, <https://unstats.un.org/sdgs/report/2022/extended-report/>.

⁴⁴ United Nations Environment Programme, *Convention on Biological Diversity. First Draft of the Post-2020 Global Biodiversity Framework*, CBD/WG2020/3/3 (July 5, 2021), Annex, p. 6, para. 12, Target 3, available at <https://www.cbd.int/doc/c/914a/eca3/24ad42235033f031badf61b1/wg2020-03-03-en.pdf>.

⁴⁵ United Nations Environment Programme, Annex, p. 3, para. 1.

⁴⁶ See, Convention on Biological Diversity, “Preparations for the Post-2020 Biodiversity Framework,” <https://www.cbd.int>, accessed December 13, 2022, <https://www.cbd.int/conferences/post2020>.

⁴⁷ The full text of target 14.7 is:

By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.

See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁴⁸ Economic and Social Council, *Ministerial declaration of the high-level segment of the 2022 session of the Economic and Social Council and the 2022 high-level political forum on sustainable development, convened under the auspices of the Council, on the theme “Building back better from the coronavirus disease (COVID-19) while advancing the full implementation of the 2030 Agenda for Sustainable Development”*, pp. 13–14, paras. 55 and 52 respectively. The United Nations High-level Political Forum on Sustainable Development is the platform for the follow-up and review of the SDGs [see, United Nations, “High-Level Political Forum on Sustainable Development,” <https://hlpf.un.org/>, accessed December 13, 2022, <https://hlpf.un.org/>].

marine technology in order to improve ocean health.⁴⁹ A recent study found that despite its relevance to society, funding for ocean science remains low compared to other major fields of research.⁵⁰ As a stimulus, the General Assembly has declared the period 2021-2030 to be the United Nations Decade of Ocean Science for Sustainable Development,⁵¹ the implementation of which is spearheaded by the Intergovernmental Oceanographic Commission of UNESCO, and which aims to mobilize action towards “[t]ransformative ocean science solutions for sustainable development.”⁵² The ten challenge areas identified for action during the Ocean Decade are all aligned with Goal 14 and include challenges relating to marine pollution, ecosystems and biodiversity, sustainable food production and ocean economies, climate change and ocean hazards resilience, data collection and modelling, capacity development and awareness-raising.⁵³

Target 14.b points to the importance of providing access for small-scale artisanal fishers to marine resources and markets.⁵⁴ Small-scale fishers and fish workers account for about 90% of the people working in capture fisheries value chains worldwide, including forty-five million women.⁵⁵ To highlight the important role of small-scale artisanal fisheries and aquaculture in achieving sustainable development, as well as the need to promote dialogue and collaborations between

⁴⁹ The full text of target 14.a is:

Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.

See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁵⁰ UNESCO-IOC, “Global Ocean Science Report 2020. Charting Capacity for Ocean Sustainability” (Paris: UNESCO, 2020), 71, <https://sdgs.un.org/sites/default/files/2022-01/GOSR%202020.pdf>. See also, United Nations, “The Sustainable Development Goals Report 2021,” 2021, 55, [https://unstats.un.org/sdgs/report/2021/extended-report/Goal%20\(14\)_final.pdf](https://unstats.un.org/sdgs/report/2021/extended-report/Goal%20(14)_final.pdf).

⁵¹ General Assembly resolution 72/73, *Oceans and the law of the sea*, RES/A/72/73 (January 4, 2018), pp. 46-47, para. 292, available at undocs.org/en/A/RES/72/73.

⁵² See, United Nations, “Vision & Mission. Achieving the Ocean We Want by 2030,” <https://www.oceandecade.org>, accessed December 12, 2022, <https://www.oceandecade.org/vision-mission/>.

⁵³ See, United Nations, “Challenges. 10 Ocean Decade Challenges for Collective Impact,” <https://www.oceandecade.org>, accessed December 12, 2022, <https://www.oceandecade.org/challenges>.

⁵⁴ The full text of target 14.b is: “Provide access for small-scale artisanal fishers to marine resources and markets.” See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁵⁵ See, United Nations, “International Year of Artisanal Fisheries and Aquaculture 2022,” <https://www.fao.org>, accessed December 12, 2022, <https://www.fao.org/artisanal-fisheries-aquaculture-2022/home/en/>.

all stakeholders in the sector, the General Assembly has declared 2022 the International Year of Artisanal Fisheries and Aquaculture, with FAO as the lead agency.⁵⁶

The final target—target 14.c—is most closely related to the work of my Office—the Office of Legal Affairs of the United Nations—and to enhancing the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS.⁵⁷ As the General Assembly recognizes on an annual basis, the Convention sets out “the legal framework within which all activities in the oceans and seas must be carried out and is of strategic importance as the basis for national, regional and global action and cooperation in the marine sector.”⁵⁸ The Convention—often described as “a constitution for the oceans”⁵⁹—was adopted in 1982 and celebrates its fortieth anniversary this year. Its two implementing agreements—the 1994 Agreement relating to the implementation of Part XI of the Convention and the 1995 United Nations Fish Stocks Agreement—focus on issues relating to the deep seabed and fishing respectively,⁶⁰ while a large number of other international agreements address

⁵⁶ General Assembly resolution 72/72, *Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments*, RES/A/72/72 (December 5, 2017), p. 11, para. 31, available at undocs.org/en/A/RES/72/72.

⁵⁷ The full text of target 14.c is:

Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of «The future we want».

See, United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁵⁸ See, for example, General Assembly resolution 76/72, *Oceans and the law of the sea*, RES/A/76/72 (December 20, 2021), pp. 1-8, preamble, available at undocs.org/en/A/RES/76/72.

⁵⁹ See, Koh, “‘A Constitution for the Ocean’ in United Nations Convention on the Law of the Sea with Index and Final Act of the Third United Nations Conference on the Law of the Sea.” Reference to the Convention as a *constitution* is now common. See, for example, Robin R. Churchill, “The 1982 United Nations Convention on the Law of the Sea,” in *The Oxford Handbook of the Law of the Sea*, ed. Donald Rothwell et. al., Oxford Handbooks in Law (Oxford, United Kingdom: Oxford University Press, 2015), 44–45; Miguel de Serpa Soares, “75 Years of International Law-Making at the United Nations,” *Max Planck Yearbook of United Nations Law Online* 23, No. 1 (December 3, 2020): 17.

⁶⁰ The 1994 Agreement relating to the implementation of Part XI of the Convention currently has one-hundred fifty-one parties, details of which are available on United Nations Treaty Collection, “Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982,” <https://treaties.un.org>, accessed December 12, 2022, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-6-a&chapter=21&clang=_en. The 1995 United Nations Fish Stock

ocean-related issues, including marine pollution, maritime safety, and the management of particular marine areas and resources.⁶¹ While the Convention—as the overarching framework—has achieved broad participation, other ocean-related agreements could benefit from increased membership.⁶² Moreover, levels of implementation vary across instruments and regions.⁶³

We find ourselves at almost the halfway point between the adoption of the 2030 Agenda and its target date. Significant work remains to be done to fully achieve all the targets, particularly since Goal 14 remains among the least funded of all SDGs.⁶⁴ Nevertheless, progress has been made on many fronts. Particularly encouraging is the level of engagement on ocean issues by all kinds of stakeholders, as demonstrated by the voluntary commitments to advance the implementation of Goal 14. Since the 2017 United Nations Ocean Conference, more than 2,000 voluntary commitments have been registered by stakeholders including Governments, the private sector, civil society, and academic institutions.⁶⁵ To follow up on the implementation of existing voluntary commitments and generate new ones and to facilitate collaboration and networking amongst different actors in support of Goal 14, the United Nations launched nine multi-stakeholder Communities of Ocean Action, each with its own thematic

Agreement currently has ninety-two parties, details of which are available on United Nations Treaty Collection, “Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,” <https://treaties.un.org>, accessed December 12, 2022, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-7&chapter=21&clang=_en.

⁶¹ See, for instance, the various conventions adopted under the auspices of the International Maritime Organization, available on IMO, “List of IMO Conventions,” <https://www.imo.org>, accessed December 12, 2022, <https://www.imo.org/en/About/Conventions/Pages/ListOfConventions.aspx>, as well as the conventions relating to the UNEP Regional Seas Programme, information on which is available on UNEP, “Regional Seas Programme,” <https://www.unep.org>, accessed December 12, 2022, <https://www.unep.org/explore-topics/oceans-seas/what-we-do/regional-seas-programme>.

⁶² United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 7 at the 2022 United Nations Ocean Conference: Enhancing the conservation and sustainable use of oceans and their resources by implementing international law, as reflected in the United Nations Convention on the Law of the Sea*, A/CONF.230/2022/7 (April 29, 2022), pp. 7–8, available at undocs.org/en/A/CONF.230/2022/7.

⁶³ For further details, see, United Nations, “The Sustainable Development Goals Report 2022, Extended Report for Goal 14,” 17.

⁶⁴ OECD, “SDG 14 Is among the Least Funded SDGs by Both Official Development Assistance and Philanthropic Development Funding: Normalised 2017 Commitments,” in *Sustainable Ocean for All: Harnessing the Benefits for Developing Countries*, The Development Dimension (OECD, 2020), https://www.oecd-ilibrary.org/development/sustainable-ocean-for-all_bede6513-en.

⁶⁵ See, United Nations, “2022 United Nations Ocean Conference,” <https://sdgs.un.org>, accessed September 8, 2022, <https://www.un.org/en/conferences/ocean2022/about>.

focus, consequent to the 2017 Conference.⁶⁶ The Secretary-General of the ISA and I serve as focal points for the community on the implementation of international law as reflected in the Convention and strive to work closely with Mr. Peter Thomson—the Secretary-General’s Special Envoy for the Ocean—in that regard.

A recent assessment of the impacts of these voluntary commitments found that they have collectively furthered the attainment of Goal 14, though the progress being made is likely not “[...] at a scale that is large enough to make a real difference for the ocean and its biodiversity.”⁶⁷ In respect of the implementation of international law as reflected in the Convention, the report highlighted the progress that has been made in cross-sectoral regional cooperation, while also pointing out that many stakeholders will likely require assistance in order to better understand and implement the provisions of the Convention.⁶⁸

C. The Role of OLA in Achieving Sustainable Development Goal 14 through Enhancing Global Ocean Governance

OLA of the United Nations is the part of the United Nations Secretariat that provides the Secretary-General with legal advice and performs various other legal functions.⁶⁹ It has played an important role in ocean affairs and the law of the sea almost since its establishment, initially as secretariat for the International Law Commission, which developed draft articles on the law of the sea from 1949 to 1956.⁷⁰ This role was further strengthened when, in 1992, the Office for Ocean Affairs and the Law of the Sea—that had served as secretariat to the Third United Nations Conference on the Law of the Sea—was integrated into OLA as the DOALOS.⁷¹

⁶⁶ General Assembly resolution 73/1, *Report of the Secretary-General on the Work of the Organization*, A/73/1 (2018), available at undocs.org/en/A/73/1.

⁶⁷ United Nations, “Assessment of the Impacts of the United Nations Ocean Conference Voluntary Commitments” (New York: United Nations, 2021), vi (executive summary), <https://sdgs.un.org/sites/default/files/2022-01/DESA-Oceans-VCs.pdf>.

⁶⁸ United Nations, 64.

⁶⁹ United Nations, *Secretary-General’s bulletin. Organization of the Office of Legal Affairs*, ST/SGB/2021/1 (January 18, 2021), available at undocs.org/en/ST/SGB/2021/1, Section 2. See also, generally, United Nations, “Office of Legal Affairs,” <https://www.un.org>, accessed December 12, 2022, <https://www.un.org/ola/en/history>.

⁷⁰ See, International Law Commission, “Analytical Guide to the Work of the International Law Commission,” <https://legal.un.org>, accessed December 12, 2022, https://legal.un.org/ilc/guide/8_2.shtml.

⁷¹ See, United Nations, “Office of Legal Affairs.”

Today, through OLA/DOALOS, OLA serves as secretariat to UNCLOS and the 1995 United Nations Fish Stocks Agreement and facilitates various General Assembly processes on oceans and the law of the sea.⁷² It also has a strong mandate for capacity-building to strengthen the full and effective implementation of those instruments, particularly in developing countries.⁷³ In this context, OLA regularly undertakes various activities to assist States in achieving the commitments set out in Goal 14 and its ten targets, as described below.

1. *The legal framework*

As noted above, target 14.c is dedicated specifically to the enhancement of the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the Convention,⁷⁴ underlining the importance of effective implementation of the legal framework in promoting Goal 14.⁷⁵ Acting as the secretariat for the Convention, OLA/DOALOS ensures the fulfilment of various functions of the United Nations Secretary-General thereunder, and assists States and intergovernmental organizations in the consistent and uniform application and implementation of the Convention through the provision of information, advice and assistance.⁷⁶

OLA/DOALOS is also the custodian entity for the only indicator for target 14.c, which through a survey aims to measure States' progress in implementing the Convention and related agreements by calling for an assessment of the

[n]umber of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources.⁷⁷

⁷² United Nations, *Secretary-General's bulletin. Organization of the Office of Legal Affairs*, Section 9. See, for more information, [...] United Nations, "Oceans & Law of the Sea. United Nations. Division for Ocean Affairs and the Law of the Sea," <https://www.un.org>, Section 9, accessed December 12, 2022, <https://www.un.org/depts/los/index.htm>.

⁷³ United Nations, *Secretary-General's bulletin. Organization of the Office of Legal Affairs*, Section 9.2(i).
⁷⁴ See, for the text of target 14.c, fn.58 above.

⁷⁵ See, for further details, for example, United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 7 at the 2022 United Nations Ocean Conference: Enhancing the conservation and sustainable use of oceans and their resources by implementing international law, as reflected in the United Nations Convention on the Law of the Sea*.

⁷⁶ United Nations, *Secretary-General's bulletin. Organization of the Office of Legal Affairs*, Section 9.

⁷⁷ The indicator is available at United Nations, "Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development."

This indicator and its related methodology originated in a proposal made by UN-Oceans, for which I serve as the focal point as designated by the General Assembly, and which is elaborated upon below.

The first data collection carried out by OLA/DOALOS to seek information from States on the headway being made towards target 14.c revealed that, while many States are parties to the Convention and its implementing agreements, additional efforts are needed to achieve their effective implementation in certain States.⁷⁸ Indeed, the General Assembly regularly calls upon States that have not yet done so to become parties to the Convention and its two implementing agreements,⁷⁹ and to harmonize their national legislation with the Convention, as well as with those of other relevant agreements and instruments.⁸⁰ OLA has a key role to play in supporting the General Assembly, the global institution with competence to consider and review developments relating to ocean affairs and the law of the sea,⁸¹ in its annual consideration of ocean issues.

2. Marine biological diversity of ABNJ

Nearly two-thirds of the ocean—representing some 95% of that part of the planet which is inhabited by life—is in ABNJ,⁸² and thus outside any given State’s control.⁸³ This poses challenges for the management of these areas and the important resources therein.⁸⁴ Negotiations are underway to respond to the consequent “[...] need for the comprehensive global regime to better address

⁷⁸ See, for example, Economic and Social Council, *Report of the Secretary General on Progress towards the Sustainable Development Goals*, E/2021/58 (April 30, 2021), p. 22, para. 155, available at undocs.org/en/E/2021/58. The annual Report of the Secretary-General gives an overview based on data from the global indicator framework.

⁷⁹ See, for example, General Assembly resolution 76/72, *Oceans and the law of the sea*, p. 8, paras. 2–3.

⁸⁰ See, for example, General Assembly resolution 76/72, p. 8, para. 4.

⁸¹ General Assembly resolution 76/72, p. 58, para. 372.

⁸² United Nations, *The Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction* (New York: United Nations, 2017), paras. 1–2. See also, David S. Berry, “Unity or Fragmentation in the Deep Blue: Choices in Institutional Design for Marine Biological Diversity in Areas Beyond National Jurisdiction,” *Frontiers in Marine Science* 8 (October 26, 2021): 761552.

⁸³ The Convention sets out the jurisdiction, rights and obligations of States in maritime zones within national jurisdiction (internal waters, territorial sea, archipelagic waters, EEZ, and continental shelf), and ABNJ (the high seas and the Area): see the Convention, particularly Parts II, IV–VII and XI.

⁸⁴ See, discussing some of these challenges, for example, Berry, “Unity or Fragmentation in the Deep Blue”; Robin M. Warner, “Conserving Marine Biodiversity in Areas Beyond National Jurisdiction: Co-Evolution and Interaction with the Law of the Sea,” in *The Oxford Handbook of the Law of the Sea*, ed. Donald Rothwell et al., 1st ed. (Oxford University Press, 2015), 752–54, 758 and 775, <https://academic.oup.com/edited-volume/42608>.

the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.”⁸⁵ These negotiations are aimed at elaborating what would be a third implementing agreement to the Convention dedicated to this topic,⁸⁶ thereby strengthening the existing legal regime and contributing to the sustainable development of the ocean.⁸⁷ The BBNJ Intergovernmental Conference to elaborate the text of an international legally binding instrument under the Convention was convened by the General Assembly in 2017, with negotiations addressing the topics identified in a package agreed in 2011, namely the conservation and sustainable use of marine biological diversity of ABNJ, in particular—together and as a whole—marine genetic resources, including questions on the sharing of benefits, measures such as area-based management tools, including marine protected areas, environmental impact assessments, and capacity-building and the transfer of marine technology.⁸⁸

As at mid-2022, the BBNJ Intergovernmental Conference had made significant progress towards reaching agreement in a fifth session of negotiations,⁸⁹ with the session to be resumed at a date to be determined.⁹⁰ OLA plays a key role in facilitating these negotiations. I act as the Secretary-General of the BBNJ Intergovernmental Conference, and with my team, particularly colleagues in OLA/DOALOS, I assist the President of the Conference and her team of

⁸⁵ General Assembly resolution 69/292, *Development of an international legally binding instrument 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*, A/RES/69/292 (June 19, 2015), Preamble, available at undocs.org/en/A/RES/69/292.

⁸⁶ Also known as *BBNJ Agreement*.

⁸⁷ See generally, United Nations, “United Nations Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction,” <https://www.un.org>, accessed December 12, 2022, <https://www.un.org/bbnj/>.

⁸⁸ General Assembly resolution 72/249, *International legally binding instrument 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*, A/RES/72/249 (January 19, 2018), available at undocs.org/en/A/RES/72/249.

⁸⁹ The fifth session was mandated by the General Assembly [*Intergovernmental conference on an international legally binding instrument 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*, A/76/L.46 (March 24, 2022), available at undocs.org/en/A/76/L.46], after the four original sessions had been mandated by a General Assembly resolution [see *International legally binding instrument 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*].

⁹⁰ See, General Assembly, *Statement by the President of the conference issued after the suspension of the fifth session*, A/CONF.232/2022/9 (September 14, 2022), available at undocs.org/en/A/CONF.232/2022/9.

facilitators in organizing the procedural aspects of the meetings and in preparing substantive outputs based on the views expressed by delegations.

3. Fisheries

OLA—through OLA/DOALOS—also contributes to the achievement of the fisheries-related targets of Goal 14 as secretariat for two central instruments that are at the core of the international legal framework for the conservation and management of marine living resources—UNCLOS and the 1995 United Nations Fish Stocks Agreement. They are complemented by other binding and non-binding international instruments on sustainable fisheries, adopted at the global and regional levels, including through FAO and regional fisheries management organizations or arrangements (RFMO/As).⁹¹ It is important to note that there is a clear parallelism between the fisheries-related obligations set forth in the Convention and 1995 United Nations Fish Stocks Agreement and the commitments undertaken in Goal 14, and that the full and effective implementation of these two instruments is therefore essential to meeting targets 14.2, 14.4, 14.6 and 14.b, as well as many related goals and targets.⁹²

The Convention sets out the overarching legal regime for the conservation and management of marine living resources within areas under national jurisdiction and on the high seas. In particular, it sets out the rights of coastal states to the utilization of marine living resources within their EEZ, but couples these rights with obligations to conserve and manage fish stocks, taking into account the best available scientific evidence to avoid their overexploitation, and

⁹¹ See, for example, Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, November 22, 2009, 3161 UNTS 67409. 1. It entered into force June 5, 2016, and currently has seventy-two parties, details on which are available at FAO, “Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing” (Food and Agriculture Organization of the United Nations, 2016), <https://www.fao.org/3/i5469t/I5469T.pdf>; Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, November 24, 1993, 2221 UNTS 50109, 91. It currently has forty-five Parties, details on which are available at FAO, “Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas” (Treaties UN, April 2003), <https://treaties.un.org/pages/showDetails.aspx?objid=080000028007be1a>; FAO, ed., *Code of Conduct for Responsible Fisheries* (Rome: Food and Agriculture Organization of the United Nations, 1995), <https://www.fao.org/3/v9878e/v9878e.pdf>.

⁹² See, FAO, *FAO’s Contribution of Fisheries and Agriculture towards Achieving the 2030 Agenda for Sustainable Development*, COFI/2022/3 (July 2022), available at <https://www.fao.org/3/nj643en/nj643en.pdf>.

with the objective of achieving their optimum utilization.⁹³ Coastal States are required to determine a total allowable catch for resources within their EEZ and take measures designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield.⁹⁴ States are also required to adopt measures for the conservation of marine living resources on the high seas.⁹⁵

The 1995 United Nations Fish Stocks Agreement sets out the legal regime for the conservation and management of straddling fish stocks and highly migratory fish stocks, which constitute the majority of commercially exploitable high seas fish stocks, with a view to ensuring their long-term conservation and sustainable use. It elaborates on the fundamental principle established in the Convention that States should cooperate in taking the measures necessary for the conservation and management of straddling fish stocks and highly migratory fish stocks—based on an ecosystem approach, the precautionary approach, and the best scientific evidence available.⁹⁶ RFMO/As are the primary vehicle for cooperation between coastal States and high seas fishing States in the conservation and management of stocks covered by 1995 United Nations Fish Stocks Agreement.⁹⁷

As secretariat for these instruments, OLA also provides information and advice to promote full and effective implementation and ensure their uniform and consistent application. In addition, it serves as secretariat for three important processes on sustainable fisheries. The Review Conference convened pursuant to Article 36 of the 1995 United Nations Fish Stocks Agreement is mandated to assess its effectiveness in securing the conservation and management of straddling fish stocks and highly migratory fish stocks. It does so by reviewing and assessing the adequacy of its provisions and, if necessary, proposing means of strengthening the substance and methods of implementation of those provisions in order to better address any continuing problems in the conservation and

⁹³ See, Articles 61 and 62 of UNCLOS.

⁹⁴ See, Article 61 of UNCLOS. See also, Target 14.4, which aims to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics [United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”]

⁹⁵ See, Articles 116 to 119 of UNCLOS.

⁹⁶ See, Articles 5 and 6 of the 1995 United Nations Fish Stocks Agreement; Article 64 of UNCLOS. See also, “Background Paper on the 1995 United Nations Fish Stocks Agreement,” accessed December 12, 2022, www.un.org/depts/los/convention_agreements/Background%20paper%20on%20UNFSA.pdf.

⁹⁷ See, “Background Paper on the 1995 United Nations Fish Stocks Agreement.”

management of those stocks. It was convened four years after the entry into force of the 1995 United Nations Fish Stocks Agreement and subsequently resumed in 2010 and 2016. It will resume again in 2023. Each time it has met, the Review Conference—informed by a comprehensive report of the Secretary-General—has adopted a series of recommendations to strengthen the implementation of the 1995 United Nations Fish Stocks Agreement and, thus, the sustainability of straddling fish stocks and highly migratory fish stocks.⁹⁸

Fifteen rounds of Informal Consultations of States Parties to 1995 United Nations Fish Stocks Agreement have been convened to undertake preparations for the resumption of the Review Conference and foster an exchange of information on the implementation of 1995 United Nations Fish Stocks Agreement. Since 2018, the Informal Consultations have also focused discussions each year on a different topic relevant to the implementation of the 1995 United Nations Fish Stocks Agreement. These have included the science-policy interface, performance reviews of RFMO/As and the implementation of an ecosystem approach to fisheries management.⁹⁹

Lastly, OLA serves as secretariat for the informal consultations on the draft General Assembly resolution on sustainable fisheries, which is adopted on an annual basis.¹⁰⁰ The resolution sets out ways and means for strengthening the sustainability of the world's fish stocks, including through the implementation of the 1995 Fish Stocks Agreement. As part of this process, the United Nations General Assembly periodically undertakes a review of measures taken by States and RFMO/As to address the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks. This review and the measures subsequently put in place through the resolutions on sustainable fisheries not only impact the sustainability of fish stocks as per target 14.4, but

⁹⁸ See, for further information, United Nations, “Review Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,” *Oceans & Law of the Sea-United Nations* (blog), November 2, 2022, www.un.org/depts/los/convention_agreements/review_conf_fish_stocks.htm.

⁹⁹ See, for further information, United Nations, “Fifteenth Round of Informal Consultations of States Parties to the Agreement, Focusing on the Topic ‘Implementation of an Ecosystem Approach to Fisheries Management,’” <https://www.un.org>, accessed December 12, 2022, https://www.un.org/Depts/los/convention_agreements/fish_stocks_agreement_states_parties.htm.

¹⁰⁰ See, United Nations, “General Assembly Resolutions and Decisions,” <https://www.un.org>, accessed December 12, 2022, https://www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm.

also the health of the marine ecosystems on which such stocks depend, as per target 14.2.¹⁰¹

4. Informed science-based policy-making

As noted above, target 14.a recognises the importance of ocean science in ensuring that appropriate and effective decisions are made in the sustainable management of ocean spaces.¹⁰² OLA has an important role to play in ensuring that science reaches decision-makers, as part of strengthening what is known as the *science-policy interface*.¹⁰³ OLA/DOALOS acts as the secretariat for the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects,¹⁰⁴ which is a global mechanism established by the General Assembly for the assessment, on a regular basis, of the state of the world's oceans.¹⁰⁵ The flagship publications of the Regular Process are the World Ocean Assessments, the second of which was released in 2021.¹⁰⁶ These assessments provide a comprehensive overview of environmental, social and economic aspects of the ocean and its relationship with humanity, based on the work of hundreds of experts, and its importance and relevance cannot be overstated.¹⁰⁷ Written in an accessible format, they can

¹⁰¹ See, for further information, United Nations, "Workshop to Discuss the Implementation of Paragraphs 113, 117 and 119 to 124 of Resolution 64/72, Paragraphs 121, 126, 129, 130 and 132 to 134 of Resolution 66/68 and Paragraphs 156, 171, 175, 177 to 188 and 219 of Resolution 71/123 on Sustainable Fisheries, Addressing the Impacts of Bottom Fishing on Vulnerable Marine Ecosystems and the Long-Term Sustainability of Deep-Sea Fish Stocks," <https://www.un.org>, accessed December 13, 2022, https://www.un.org/depts/los/bottom_fishing_workshop.htm.

¹⁰² See, fn.50 above. See also, generally, United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 6 at the 2022 United Nations Ocean Conference: Increasing scientific knowledge and developing research capacity and transfer of marine technology*, A/CONF.230/2022/6 (April 29, 2022), p. 2, paras. 1–2, available at undocs.org/en/A/CONF.230/2022/6; General Assembly resolution 76/72, *Oceans and the law of the sea*, pp. 1–8, Preamble.

¹⁰³ See, for example, United Nations, *Our ocean, our future, our responsibility*, p. 6, para. 14(h); United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 6 at the 2022 United Nations Ocean Conference: Increasing scientific knowledge and developing research capacity and transfer of marine technology*, pp. 4–5 and 10–11, paras. 12 and 36 respectively.

¹⁰⁴ Also known as *Regular Process*.

¹⁰⁵ See, United Nations, "Regular Process for Global Reporting and Assessment of the State of the Marine Environment, Including Socioeconomic Aspects (Regular Process)," <https://www.un.org/>, accessed December 13, 2022, <https://www.un.org/regularprocess/content/about>.

¹⁰⁶ United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, 2021; United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, 2021.

¹⁰⁷ United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, 2021, I:Preface.

be used as a basis for policymakers to make the decisions necessary to promote the sustainable development of the ocean at all levels.¹⁰⁸

OLA/DOALOS also collaborates with IOC-UNESCO to support the United Nations Decade of Ocean Science for Sustainable Development noted above, including through participation in the Decade Advisory Board, which provides strategic advice on issues of implementation.¹⁰⁹ In addition, it is one of the sponsoring organizations of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), which consists of independent experts providing scientific advice on issues affecting the marine environment to the United Nations system as a whole and supports the work of the sponsoring organizations, including by providing studies and assessments as requested.¹¹⁰

Other United Nations processes are also important in this respect, including the ICP,¹¹¹ which is substantively supported by OLA/DOALOS. Established by the General Assembly in 1999, this process facilitates the General Assembly's annual review of developments in ocean affairs and the law of the sea by suggesting issues to be considered and identifying areas where coordination and cooperation could be enhanced.¹¹² Recent topics considered by the ICP have related to ocean science, climate change, and marine pollution, issues of clear relevance to the implementation of Goal 14.¹¹³ By bringing together experts and policy leaders, the ICP contributes to an understanding of current ocean-related challenges and opportunities for action, particularly through international cooperation and collaboration.

¹⁰⁸ United Nations, *The Second World Ocean Assessment: World Ocean Assessment II*, 2021.

¹⁰⁹ See, United Nations, "Decade Advisory Board," <https://www.oceandecade.org>, accessed December 13, 2022, <https://www.oceandecade.org/decade-advisory-board/>. See also, the text surrounding fn.127 below.

¹¹⁰ See, GESAMP, "Science for Sustainable Ocean," <http://www.gesamp.org/>, accessed December 13, 2022, <http://www.gesamp.org/work/groups>.

¹¹¹ Also known as *ICP*.

¹¹² See, General Assembly resolution 54/33, *Results of the review by the Commission on Sustainable Development of the sectoral theme of "Oceans and seas": international coordination and cooperation*, A/RES/54/33 (November 24, 1999), available at undocs.org/en/A/RES/54/33. See also generally, United Nations, "United Nations Open-Ended Informal Consultative Process on Oceans and the Law of the Sea," <https://www.un.org>, accessed December 13, 2022, https://www.un.org/depts/los/consultative_process/consultative_process.htm.

¹¹³ The list of topics considered by the ICP may be found on United Nations.

5. *Capacity-building*

Capacity is fundamental to engage in sustainable ocean management and with the international legal framework governing ocean activities—both key elements in achieving Goal 14. Indeed, the effective management of ocean spaces, resources and activities depends on the capacity of States to fully and effectively implement the legal framework for the conservation and sustainable use of the oceans, as reflected in the Convention and related instruments. Such capacity has many dimensions and can include appropriate national legislation, policies and institutional frameworks, trained personnel, and operational capabilities.

OLA/DOALOS provides assistance to States in developing capacity concerning the uniform and consistent application of the Convention and related agreements, including the 1995 United Nations Fish Stocks Agreement, as well as ocean affairs more broadly, as part of its capacity-building programme.¹¹⁴ This programme provides needs-based assistance to support developing States in the conservation and sustainable use of the ocean. The SDGs—and particularly Goal 14—are mainstreamed into the programme, which also prioritizes contemporary and emerging topics of relevance to beneficiaries, such as ocean governance, the science-policy interface, oceans and climate change, and sustainable ocean-based economies (the blue economy).

The programme includes technical cooperation projects supporting capacity-development activities at the multilateral and bilateral level.¹¹⁵ These projects, which include tailored training courses, analyses of national legislative and institutional frameworks for ocean governance, and needs assessments at national and regional levels, are implemented by OLA/DOALOS in conjunction with other intergovernmental organizations and development partners. The programme also includes fellowships, including (i) the United Nations—Nippon Foundation Capacity-building Programmes, which consist of training programmes, as well as activities for alumni, that ensure long-term and continued capacity development in the fields of ocean affairs, the law of the sea, and related disciplines,¹¹⁶

¹¹⁴ See, Division for Ocean Affairs and the Law of the Sea, “Capacity-Building and Trust Funds,” <https://www.un.org>, accessed December 13, 2022, <https://www.un.org/oceancapacity/>.

¹¹⁵ See, for further information on past and current projects, United Nations, “Technical Cooperation Projects,” <https://www.un.org>, accessed December 13, 2022, <https://www.un.org/oceancapacity/projects>.

¹¹⁶ See, for further information, United Nations, “Hamilton Shirley Amerasinghe Memorial Fellowship Programme,” <https://www.un.org/>, accessed December 13, 2022, <https://www.un.org/oceancapacity/HSA>.

and (ii) the Hamilton Shirley Amerasinghe Memorial Fellowship Programme to assist in acquisition of additional knowledge of the Convention, in order to promote its wider appreciation and application, and to enhance specialized knowledge.¹¹⁷ The General Assembly has also established a number of Trust Funds, administered by OLA/DOALOS, to assist developing States in the implementation of the Convention and in their participation in the oceans and the law of the sea related processes of the General Assembly.¹¹⁸

To date, in the context of its fellowship programmes alone, OLA/DOALOS has provided training to more than two-hundred and fifty participants, of whom over 99% are nationals of developing States and has reached many more through bilateral and regional trainings. All of our initiatives are undertaken with a gender perspective, bearing in mind that women have always played a major role in humanity's interaction with the ocean, for instance, through engaging in the blue economy, science, and culture, including through traditional knowledge.

D. International Cooperation and Coordination

Goal 14 is one among seventeen SDGs in total, all of which are “universal, indivisible and interlinked.”¹¹⁹ In this light, it is essential to view the achievement of Goal 14 in a cross-sectoral fashion and to embrace multidisciplinary partnerships and international cooperation.¹²⁰ Indeed, Goal 17 speaks, among other things, of partnerships and international cooperation as necessary elements for achieving the 2030 Agenda for Sustainable Development as a whole.¹²¹

¹¹⁷ See, for further information, Division for Ocean Affairs and the Law of the Sea, ‘Hamilton Shirley Amerasinghe Memorial Fellowship Programme’, <https://www.un.org/>, accessed on 13 December 2022, <https://www.un.org/oceancapacity/HSA>.

¹¹⁸ See, for further information, including information for potential beneficiaries and donors, United Nations, ‘Trust Funds Administered by the Division,’ <https://www.un.org/>, accessed December 13, 2022, <https://www.un.org/oceancapacity/tf>.

¹¹⁹ General Assembly resolution 70/1, *Transforming Our World: the 2030 Agenda for Sustainable Development*, pp. 1–2, preamble.

¹²⁰ See, United Nations, *Concept Paper prepared by the Secretariat for Interactive Dialogue 8 at the 2022 United Nations Ocean Conference: Leveraging interlinkages between Sustainable Development Goal 14 and other Goals towards the implementation of the 2030 Agenda for Sustainable Development*, A/CONF.230/2022/8 (April 29, 2022), pp. 12–13, paras. 42–43 and references therein, available at undocs.org/en/A/CONF.230/2022/8.

¹²¹ See, for example, Targets 17.6, 17.9, 17.16 and 17.17, available at United Nations, ‘Goal 17. Strengthen the Means of Implementation and Revitalize the Global Partnership for Sustainable Development,’ <https://sdgs.un.org/>, accessed December 13, 2022, <https://sdgs.un.org/goals/goal17>.

As mentioned above, within the United Nations, an inter-agency coordination mechanism on ocean and coastal issues—UN-Oceans, established in 2003—seeks to enhance the coordination, coherence and effectiveness of competent organizations of the United Nations system and the ISA.¹²² With twenty-nine members boasting a wide variety of mandates and expertise, UN-Oceans allows for coordination across sectors, for the leveraging of synergies, and for the sharing of information, best practices and tools on ocean-related matters.¹²³ As the focal point for UN-Oceans, OLA/DOALOS and I play a key role in facilitating a more effective and holistic approach to achieving of ocean-related goals across the system as a whole. One of the recognized achievements of UN-Oceans is the development of an inventory of mandates and activities of its members,¹²⁴ which aims to assist in identifying possible areas for collaboration and synergy.¹²⁵ The inventory is also expected to assist Member States and relevant stakeholders in identifying where opportunities might lie for synergies and greater coherence in activities, as well as the support available to them from UN-Oceans members.¹²⁶ Such an inventory has the potential to become a useful tool in supporting the implementation of Goal 14 and other ocean-related SDGs in an integrated manner by fostering coordination and cooperation among relevant sectoral organizations.¹²⁷

¹²² See, General Assembly resolution 68/70, *Oceans and the law of the sea: international coordination and cooperation*, A/RES/68/70 (February 27, 2014), p. 45–47, para. 1 of the Annex–Terms of reference for UN-Oceans, available at undocs.org/en/A/RES/68/70.

¹²³ General Assembly resolution 68/70, pp. 45–46, para. 2 of the Annex–Terms of reference for UN-Oceans. See also, United Nations, “UN-Oceans. An Interagency Collaboration Mechanism on Ocean and Coastal Issues within the UN System,” <http://www.unoceans.org>, accessed December 13, 2022, <http://www.unoceans.org/home/en/>.

¹²⁴ See, General Assembly resolution 71/257, *Oceans and the law of the sea*, A/RES/71/257 (February 27, 2014), p. 56, para. 345, available at undocs.org/en/A/RES/71/257. See also, subsequent General Assembly resolutions on oceans and the law of the sea.

¹²⁵ General Assembly, *Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its seventeenth meeting*, A/71/204 (July 25, 2016), p. 20, para. 75, available at undocs.org/en/A/71/204. The inventory is available at UN Oceans, “UN-Oceans. Inventory of Mandates and Activities by UN-Oceans Members,” <http://www.unoceans.org>, accessed December 13, 2022, <http://www.unoceans.org/inventory>.

¹²⁶ General Assembly, *Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its seventeenth meeting*.

¹²⁷ General Assembly.

Recent UN-Oceans activities have included, for instance, contributions to (i) dialogues addressing the intersections of oceans and climate change;¹²⁸ (ii) the development of the Implementation Plan for the Ocean Decade; and (iii) participation by members in the Decade Advisory Board.¹²⁹ UN-Oceans also delivered a high-level side-event at the 2022 UN Ocean Conference, highlighting successful case studies of inter agency cooperation across fields including ocean science, climate change, fisheries, the well-being of seafarers, and capacity-building.¹³⁰

E. Conclusion

On June 8, 2022, a few weeks before I travelled to Lisbon for the 2022 United Nations Ocean Conference, I had the privilege to share the stage with veteran oceanographer and explorer Sylvia Earle at the United Nations celebration marking World Oceans Day, an annual event organized by OLA. Dr. Earle reminded us that, while the challenges the ocean faces are greater than ever before, so is our understanding of the importance of the ocean to human life and our ability to act on that knowledge.¹³¹ As Dr. Earle noted, “[...] with knowing comes caring, and with caring there is hope that we will protect the ocean as if our lives depend on it because now we know... they do.”¹³²

The inclusion of Goal 14—to conserve and sustainably use the oceans, seas and marine resources for sustainable development—in the 2030 Agenda for Sustainable Development was a concrete step in the recognition of the ocean’s significance for the well-being of the planet and its peoples. Its targets provide

¹²⁸ See, for example, the contribution of UN-Oceans noted on the agenda for the Ocean and climate change dialogue 2022, available at UNFCCC, “Ocean and Climate Change Dialogue 2022,” <https://unfccc.int>, accessed December 13, 2022, <https://unfccc.int/sites/default/files/resource/OceanDialogue2022Agenda.pdf>.

¹²⁹ See, IOC-UNESCO resolution A-31/1, *Implementation of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030)*, A-31/1 (June 14–25, 2021), pp. 4–6, Annex 1, available at <https://unesdoc.unesco.org/ark:/48223/pf0000379465>. See also generally, United Nations, “Decade Advisory Board.”

¹³⁰ See, UN Oceans, “2022 United Nations Ocean Conference Side Event,” 2022, https://sdgs.un.org/sites/default/files/2022-07/IBZ_Scaling%20up%20ocean%20action%20through%20inter-agency%20cooperation%20and%20coordination_%20Case%20studies%2C%20challenges%20and%20opportunities.pdf.

¹³¹ The full event video is available at *United Nations World Oceans Day. Revitalization Collective Action for the Ocean*, 2022, <https://unworldoceansday.org/>.

¹³² *United Nations World Oceans Day. Revitalization Collective Action for the Ocean*, at 50:43.

a roadmap for the ocean action that we will have to collectively undertake to protect the ocean, seas, and marine resources for current and future generations. As the Secretary-General mentioned recently, “[t]he 2030 Agenda remains our clearest pathway forward.”¹³³

As we approach the midway point for the 2030 Agenda and the 2023 SDG Summit, the importance for our planet of the ocean—and particularly the high seas and the efforts to strengthen its governance—has been highlighted in the ground-breaking 2021 report *Our Common Agenda*,¹³⁴ which constitutes “[...] a booster shot for the SDGs, to get back on track for sustainable growth and resilience in today’s very challenging circumstances.”¹³⁵

In doing so, we can rely on an elaborate network of international instruments, bodies, and processes, underpinned by the Convention, which together make up the global ocean governance framework. The United Nations, including OLA, is deeply involved in action to implement the 2030 Agenda, including Goal 14. OLA will continue its efforts to deepen our understanding of the ocean, and to enhance our ability to achieve Goal 14 and its targets by 2030, through facilitating the implementation of the Convention, providing capacity-building support to developing States, in particular least developed countries and small island developing States, as well as through facilitating cross-sectoral activities across the United Nations system as a whole.

¹³³ Secretary-General of the United Nations, “Secretary-General’s Remarks to ECOSOC Segment on Operational Activities for Development [as Delivered],” <https://www.un.org>, May 17, 2022, <https://www.un.org/sg/en/content/sg/statement/2022-05-17/secretary-generals-remarks-ecosoc-segment-operational-activities-for-development%C2%A0-delivered%C2%A0>.

¹³⁴ Secretary-General of the United Nations, “Our Common Agenda,” <https://www.un.org>, accessed December 13, 2022, <https://www.un.org/en/common-agenda>.

¹³⁵ Secretary-General of the United Nations, “Secretary-General’s Remarks to the General Assembly Consultation on ‘Our Common Agenda’,” <https://www.un.org/>, August 4, 2022, <https://www.un.org/sg/en/content/sg/speeches/2022-08-04/secretary-generals-remarks-the-general-assembly-consultation-our-common-agenda>.

CHAPTER 6 |

RESPONSIBILITY OF PRIVATE ENTITIES IN INTERNATIONAL ENVIRONMENTAL LAW

Manuel de Almeida Ribeiro

A. Introduction

In many cases, the greater relative size of States does not necessarily make them less vulnerable to harmful actions taken by other States or nationals of other States. This is one of the distinctive features of international environmental law as opposed to the general features of general international law.

In the specific case of transboundary carriage of dangerous goods by sea, the application of the presumption of international responsibility of States makes it extremely difficult to ensure adequate compensation for damage caused by accidents. As with law in general, the main driving force for the development of innovative solutions in international law is the need for such responses and the demonstration of that need by subjects of international law, whose consent to new solutions is a necessary condition for their adoption.

In this chapter, I deal with two international legal regimes that aim to solve the problem of reconciling freedom of navigation and the determination of liability with the recovery of damages in case of accidents—the regime on liability for damage caused by spills of oil and petroleum products and the regime on the liability for damage caused by the transport of radioactive material.

As we will see, the solution at the international level to ensure compensation for damages in each situation is quite different. However, both regimes deal with a common problem—securing adequate compensation to States or their nationals through a conventional international regime for damage caused to third parties.¹

¹ See, for an overall analysis of this issue, General Assembly, *Survey of liability regimes relevant to the topic of international liability for injurious consequences arising out of acts not prohibited by international law (international liability in case of loss from transboundary harm arising out of hazardous activities)*, A/CN.4/543 (June 24, 2004), available at undocs.org/en/A/CN.4/543.

B. The Regime on the International Responsibility of States in International Environmental Law

The international responsibility of a State is determined by the acts attributed to that State as the causer of the damage. Under international responsibility for international wrongful acts, the State is held responsible when an act is committed by the government, a government official or employee and, in very special cases by other entities temporarily performing *de facto* governmental functions. The rule states that an act committed by an individual in pursuit of his or her interests is not attributable to the State and therefore does not entail international responsibility. This rule would make any kind of international responsibility extremely difficult in the case of lawful but dangerous acts, particularly in so-called *ultrahazardous* activities.

It has been recognized, however, that in the latter case, the responsibility of a State may result from the fact that it has authorized the development of those activities on its territory or under its jurisdiction. Among the precedents referred to in support of this position is the *Trail Smelter Case (United States v. Canada)*,² in which Canada agreed to compensate the United States of America for environmental damage caused by a private company on its territory.

However, the invocation of this precedent must be taken with caution, since it was not a decision of an institutionalized international tribunal, but a case in which a State had agreed to pay compensation in the event of damage and for the extent of the damage. In fact, the arbitral tribunal did not rule on the issue of liability—doing so was not part of its mandate—because it had previously proceeded on political grounds motivated by the specificity of the relationship between Canada and the United States of America. However, other international instruments have also recognized that responsibility, such as Principle 21 of the Stockholm Declaration, which states in relevant part:

States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.

² *Trail Smelter Case (United States v. Canada)*, in Reports of International Arbitral Awards, Vol. III, pp. 1905–1982, available at <https://leap.unep.org/sites/default/files/court-case/Trail%2520Smelter%2520Ca.pdf> (accessed on December 20, 2022).

International practice has amply demonstrated the difficulty of holding States accountable even when the damage results from activities undertaken by their military forces, including nuclear testing, as in the case of the Japanese fishing ship *Fukuriyu Maru*, which was exposed to radiation in 1954. In the case of the *Chernobyl nuclear accident*, which occurred in 1986, Soviet authorities refused to recognize the obligation to compensate foreign governments or individuals for the transboundary effects of the accident.

In the case of damage caused to individuals, the effectiveness of international responsibility also depends on the granting of diplomatic protection by the State of which the victims are nationals, which requires (i) the prior exhaustion of internal remedies of the State against which protection is exercised; and (ii) the balance of power and influence between the States concerned or their acceptance of the appropriated judicial remedies. A regime of international responsibility of States would clearly not be effective in ensuring satisfactory and reasonable compensation for damage caused by accidents that occur in the maritime space with transboundary effects.

The need to establish a legal regime that would ensure satisfactory compensation for environmental damage, regardless of interstate contingencies, led to the transfer of compensation mechanisms from the framework of public international law to the framework of responsibility of international operators and beneficiaries.³ As we shall see, although the trend had begun earlier, Article 235 of UNCLOS firmly established this development by providing as follows:

1. States are responsible for the fulfillment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law.
2. States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.
3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, States shall

³ General Assembly, *Report of the International Law Commission on the work of its fifty-eighth session*, May 1 to June 9, 2006, and July 3 to August 11, 2006, Supplement No. 10 (A/61/10), pp. 151–165, available at undocs.org/en/A/61/10.

cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.

C. The Transportation of Oil and Oil Products by Sea

After the Second World War, the transportation of oil and oil products by sea gradually developed. The 1960s, the tendency to build larger and larger tanks increased, which aggravated the potential risk and extent of maritime accidents, including:

- (i) On March 18, 1967, the *Torrey Canyon* ran aground at the entrance to the English Channel, causing enormous environmental damage to the British coastline, particularly to fisheries, tourism, and maritime fauna;
- (ii) On March 16, 1978, the *Amoco Cadiz* spilled 270.000 tons of crude oil off the French coast. The damage to maritime activities in general was massive, and three-hundred and seventy million francs were spent on cleanup and compensation;
- (iii) On March 24, 1989, the *Exxon Valdez* ran aground off Alaska, spilling 240.000 barrels of oil, severely damaging the local ecosystem, and seriously affecting the livelihood of the native populations; and

The *Torrey Canyon* accident led to the need to establish an effective international regime that would, on the one hand, provide adequate compensation to victims of petroleum spills and, on the other hand, establish the rules of jurisdiction and procedure to address emerging problems in accidents such as these. In this context, in 1969, the International Convention on Civil Liability for Oil Pollution Damage was concluded, which defines *pollution damage* as

loss or damage caused outside the ship carrying oil by contamination resulting from the escape or discharge of oil from the ship, wherever such escape or discharge may occur, and includes the cost of preventive measures and further loss or damage caused by preventive measures.⁴

⁴ See, Article I(6) of the International Convention on Civil Liability for Oil Pollution Damage.

The territorial scope of the International Convention on Civil Liability for Oil Pollution Damage included the territory of contracting States, including their territorial seas.⁵ Three amendments were made to it in 1976,⁶ 1984,⁷ and 1992.⁸ In the last version, which included the previous amendments, the territorial scope was extended to the EEZs of the contracting States, among other changes.

The International Convention on Civil Liability for Oil Pollution Damage also states that shipowners are responsible for pollution and sea damage regardless of fault, except in some cases of force majeure.⁹ The limit of liability—later amended—was 2,000 francs for each ton of the ship's tonnage, with a maximum aggregated limit of two-hundred and ten million francs.¹⁰ In order to ensure the fulfillment of their obligations, they are required to maintain insurance or other financial security for each ship to cover the predetermined limit of their liabilities. The certificate of insurance or financial security must be carried in the ship and a copy must be deposited with the authorities keeping the ship's registry.¹¹

For shipowners, the regime has the advantage of limiting the maximum amount they must supply in case of pollution damage. Once the required sums of money have been deposited with the competent court or authority, the shipowner is relieved of any further responsibility and no additional claims, including relating to pecuniary compensation, can be brought against him. The right to compensation would be extinguished unless an action was brought within three

⁵ See, Article II of the International Convention on Civil Liability for Oil Pollution Damage.

⁶ Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969, November 19, 1976, 1225 UNTS 14097. 356.

⁷ The text of the 1984 amendment is not available. According to the IMO, however, “[t]he Protocol of 1984 set increased limits of liability but was superseded by the 1992 Protocol.” See, IMO, “International Convention on Civil Liability for Oil Pollution Damage (CLC),” <https://www.imo.org>, accessed January 8, 2023, [https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Civil-Liability-for-Oil-Pollution-Damage-\(CLC\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Civil-Liability-for-Oil-Pollution-Damage-(CLC).aspx).

⁸ Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1969, November 27, 1992, 1956 UNTS 14097. 225.

⁹ See, Article III(2) of the International Convention on Civil Liability for Oil Pollution Damage.

¹⁰ See, Article V(1) of the International Convention on Civil Liability for Oil Pollution Damage. In order to benefit from these limitations, the shipowner must create a fund by depositing either the amount or other security with the court or other competent authority of one of the contracting States in which the action is brought [see, Article V(3) International Convention on Civil Liability for Oil Pollution Damage].

¹¹ See, Article VI of the International Convention on Civil Liability for Oil Pollution Damage. Contracting States should not permit a ship under its flag to trade without the certificate [see, Article VI(10) of the International Convention on Civil Liability for Oil Pollution Damage].

years of the date of the occurrence of the damage and in no case no later than six years after the event.¹²

The limit of liability is (i) three million units of account for a ship of 5,000 units or less in tonnage; and (ii) four hundred and twenty units in addition to such account for a ship of tonnage in excess thereof for each additional unit of tonnage.¹³

Other vital provisions were those concerning the settlement of disputes. For preventive and compensatory actions, the courts of the contracting State where the damage occurred had jurisdiction. Moreover, the courts of the State in which the fund was established had jurisdiction to apportion and distribute such a fund.¹⁴

In parallel, the shipping and oil industries concluded some private international agreements to establish rules for dealing with pollution incidents. The most important agreements are the Tanker Owners' Voluntary Agreement Concerning Liability for Oil Pollution¹⁵—open to shippers and bareboat charterers—and the Contract Regarding a Supplement to Tanker Owner Liability for Oil Pollution—of which oil companies can also be parties. These agreements established funds to compensate States for the costs of protecting and cleaning up the coasts. The liability cap was originally USD 10 million per accident and was later increased to USD 16,8 million and USD 36 million in 1978. These funds were administered by the ITOPE, which decided on February 20, 1997, to terminate those agreements, as the new international arrangements became increasingly accepted by coastal States.

The International Convention on Civil Liability for Oil Pollution Damage was a crucial step forward toward a comprehensive regime for compensation for marine pollution damage. Two issues remain to be resolved. *First*, it seemed disproportionate for the shipping industry to bear the entire burden of compensation. *Second*, the liability amounts set forth in it might not have been sufficient to cover all pollution damage. In view of these shortcomings, the International Convention on the Establishment of an International Fund for

¹² See, Article VIII of the International Convention on Civil Liability for Oil Pollution Damage.

¹³ The unit of account was replaced by the Special Drawing Rights defined by the IMF and converted into national currencies.

¹⁴ See, Article IX of the International Convention on Civil Liability for Oil Pollution Damage.

¹⁵ "Tanker Owners Voluntary Agreement Concerning Liability For Oil Pollution," *International Legal Materials* 8, No. 3 (May 1969): 497–501.

Compensation for Oil Pollution Damage was concluded in 1971 and was later amended in 1976,¹⁶ 1984,¹⁷ 1992,¹⁸ 2000,¹⁹ and 2003.²⁰ Its parties are those to the International Convention on Civil Liability for Oil Pollution Damage. Its goals are to expand the mechanisms of compensation to victims of pollution damage and to extend the burden of compensation to the oil industry.

The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage established the IOPC Fund—an international organization that is a legal person under the laws of the contracting States.²¹ The purpose of the IOPC Fund is to compensate victims of pollution damage (i) when no liability arises from the International Convention on Civil Liability for Oil Pollution Damage; (ii) when the shipowner is unable to meet its obligations in full; or (iii) when the damage exceeds the amount of the shipowner's liability.²²

Contributions to the IOPCF Fund must be made by person who, in the aggregate, imports more than 150.000 tons of oil by sea in a calendar year. The amount of the contribution shall be determined on the basis of (i) the budget of the IOPC Fund as estimated by the plenary body under the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage;²³ and (ii) the information provided by the contracting States concerning the oil industry. In particular, if the total amount of contributing

¹⁶ Protocol to the International Convention on the establishment of an international fund for compensation for oil pollution damage, 1971, November 19, 1976, 1862 U.N.T.S 17146. 509.

¹⁷ "Protocol of 1984 to Amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971," *Uniform Law Review* os-12, No. 2 (August 1984): 253–301.

¹⁸ Protocol of 1992 to amend the International Convention on the establishment of an international fund for compensation for oil pollution damage, November 27, 1992, 1993 UNTS 17146. 330. Subsequent references to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage for the remainder of this chapter should be considered as including the amendments introduced by this protocol.

¹⁹ Protocol of 2000 to the International Convention on the establishment of an international fund for compensation for oil pollution damage, 1971, September 27, 2000, UNTS 17146. 8.

²⁰ Protocol of 2003 to the International Convention on the establishment of an international fund for compensation for oil pollution damage, 1992, May 16, 2003, UNTS 17146. 31.

²¹ See, Article 2(2) of the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage.

²² See, Article 4 of the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage.

²³ See, Article 11 of the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage.

oil received in such States is less than one million tons, they shall assume the obligations that would be incumbent upon each contributor in respect of such amount.

In 2003, a supplementary fund was established, creating a third tier of the compensation regime, which applies to damage occurring within the territory of the contracting States, including their territorial seas, EEZs, or their equivalent. The maximum amount of compensation payable for any one incident, together with compensation paid under the International Convention on Civil Liability for Oil Pollution Damage, shall not exceed 69.750 million units of account.

D. The Responsibility for Nuclear Damage

The exploration of nuclear energy opened a new field for the production of cheap energy, which was considered an indispensable tool for economic development in the post-Second World War world. It was not unexpected that nuclear facilities would bring new dangers to human lives and property.

The first international instrument to address this issue was the Paris Convention on Third Party Liability in the Field of Nuclear Energy. This was a regional treaty concluded between States parties to the OECD.²⁴ In 1963, it was concluded (i) the Vienna Convention on Civil Liability for Nuclear Damage, which is open to all States; (ii) the Convention supplementary to the Paris Convention on Third Party Liability in the Field of Nuclear Energy, which specified the territorial scope of the Paris Convention on Third Party Liability in the Field of Nuclear Energy and established two supplementary funds in addition to that concerning the civil liability of operators. In 1971, the Convention in the Field of Maritime Carriage of Nuclear Material aimed to harmonize it with other rules. In 1982, the upper cap of public funds was raised.²⁵

The Chernobyl disaster of 1986 galvanized the will to improve tools for a more effective response to nuclear disasters and prompted many States that had previously shown no willingness to accede to the abovementioned international instruments to reconsider these issues with renewed urgency. In 1988, the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on

²⁴ Also known as the *Paris Convention*.

²⁵ IMO, "International Convention on Civil Liability for Oil Pollution Damage (CLC)."

Third Party Liability in the Field of Nuclear Energy were linked by a joint protocol to provide broader coverage of damages.²⁶ In 1997, the Protocol to amend the Vienna Convention on civil liability for nuclear damage²⁷ and the Convention on Supplementary Compensation for Nuclear Damage²⁸ were concluded. This conventional legal framework, to which the vast majority of States belong, represents a rather special way of dealing with a type of responsibility that stands out from other solutions under international law.

Before we look at the specific case of maritime transport of nuclear materials, let us consider the main aspects of the framework in which it is perfectly embedded. The Protocol to amend the Vienna Convention on civil liability for nuclear damage expands the scope of coverage in the event of nuclear damage to include (i) economic losses; (ii) costs of restoring a damaged environment; and (iii) preventive measures. It also includes the concept of *nuclear accident* as an event that poses a serious and grave risk of nuclear damage.

Under the Protocol to amend the Vienna Convention on Civil Liability for Nuclear Damage, the latter applies to nuclear damage wherever it occurs, but (i) leaves the contracting States free to adopt legislative acts excluding its application to damage occurring in the territory or maritime areas of a non-contracting State; and (ii) can apply to a contracting State to the Protocol to amend the Vienna Convention on Civil Liability for Nuclear Damage only if it has a nuclear facility in its territory and does not provide any consideration to the non-contracting State. It also excludes facilities used for military or nonpeaceful purposes. *Finally*, the amount of liability is increased. According to Pelzer, the following are the main features of the aforementioned international instruments:²⁹

- (i) Strict liability of the nuclear facility operator, including the owner of a nuclear ship;
- (ii) Shifting liability exclusively to the operator and not to the government;

²⁶ Joint Protocol relating to the application of the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on Third Party Liability in the Field of Nuclear Energy, September 21, 1988, 1672 UNTS 28907. 293.

²⁷ Protocol to amend the Vienna Convention on civil liability for nuclear damage, September 12, 1997, 2241 UNTS 16197. 270.

²⁸ Convention on Supplementary Compensation for Nuclear Damage, September 12, 1997, 3038 UNTS 52722. 41.

²⁹ "Concepts of Nuclear Liability Revisited: A Post-Chernobyl Assessment of the Paris and the Vienna Conventions," in *Nuclear Energy Law after Chernobyl*, ed. Peter D. Cameron, Leigh Hancher, and Wolfgang Kühn, International Bar Association Series (London ; Boston : London: Graham & Trotman; International Bar Association, 1988), 97–100.

- (iii) Limitation of liability in terms of amount and time;
- (iv) Obligation of the operator to provide and maintain financial security equal to its liability—congruence of liability and coverage;
- (v) Exclusive jurisdiction of the courts of the contracting State in whose territory the nuclear incident occurred;
- (vi) Enforcement of judgments of the competent court in the territory of any other contracting State;
- (vii) Free transfer of compensation and related amounts between the monetary areas of the contracting States; and
- (viii) Application of the Vienna Convention on Civil Liability for Nuclear Damage and implementation and supplementation of national law without discrimination on the basis of nationality, residence or domicile.

The Paris Convention on Third Party Liability in the Field of Nuclear Energy states explicitly in its preamble that its objective is to counterbalance the interest in developing the nuclear industry and protect it from catastrophic claims for compensation. Although the Vienna Convention on Civil Liability for Nuclear Damage does not contain a similar statement, it is clear that it is oriented in the same direction.

In the Protocol to amend the Vienna Convention on civil liability for nuclear damage, on the contrary, illustrates the changing perceptions of the public in general and of non-nuclear States, which led to an increase in the civil liability of the operator of nuclear power plants in terms of amount, time, and territorial scope. If the operator's liability is insufficient to compensate victims, States must still ensure sufficient public funds for compensation.

The operator to whom strict liability applies is the person designated or recognized by the competent authority of the State in which the facility is constructed. The operator is liable for damage caused while in possession of the material, and if the nuclear damage involves more than one operator, the operators involved are jointly and severally liable. The claimant may sue the insurer or the financial guarantor if permitted by domestic law or the law of the court. This simplifies the question of who is liable in an individual case and at the same time provides financial security.

The responsibility of the State in which the nuclear facility is located may arise (i) if the State must cover the uninsured or guaranteed amount up to three

hundred million SDRs;³⁰ and (ii) if the State decides to limit the liability of the operator to 150 SDRs, in which case it must cover the difference up to a maximum of 300 million SDRs.³¹

State parties to the Convention on Supplementary Compensation for Nuclear Damage are required to contribute 300 SDRs per unit of installed capacity in public funds, as well as

[...] the amount determined by applying the ratio between the United Nations rate of assessment for that Contracting Party as assessed for the year preceding the year in which the nuclear incident occurs, and the total of such rates for all Contracting Parties to 10% of the sum of the amounts calculated for all Contracting Parties [...].³²

Finally, it should be noted that the Convention on Supplementary Compensation for Nuclear Damage does not affect “[...] the rights and obligations of the contracting States under the general rules of public international law.”³³ This leaves the door open for contrary claims about the existence of state liability outside its legal regime.

E. The Transportation of Nuclear Materials by Sea

The regime of liability for the transportation of nuclear material by sea is contained in the Convention in the Field of Maritime Carriage of Nuclear Material. It aims to harmonize the liability of the operator, as laid down in the Paris Convention on Third Party Liability in the Field of Nuclear Energy and in the Vienna Convention on Civil Liability for Nuclear Damage, with the liability for nuclear damage occurring during the carriage of nuclear material by sea. Articles 1 and 4 are its main provisions and state as follows:

³⁰ See, Article V of the Convention as amended by Article VII of the 1997 Protocol.

³¹ See, Article V of the Convention as amended by Article VII of the 1997 Protocol.

³² See, Article VI of the Convention on Supplementary Compensation for Nuclear Damage.

³³ International Atomic Energy Agency, ed., *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplementary Compensation for Nuclear Damage: Explanatory Texts*, IAEA International Law Series, No. 3 (Vienna: International Atomic Energy Agency, 2007), 21.

Article 1

Any person who by virtue of an international convention or national law applicable in the field of maritime transport might be held liable for damage caused by a nuclear incident shall be exonerated from such liability:

- (a) if the operator of a nuclear installation is liable for such damage under either the Paris or the Vienna Convention.
- (b) if the operator of a nuclear installation is liable for such damage by virtue of a national law governing the liability for such damage, provided that such law is in all respects as favourable to persons who may suffer damage as either the Paris or the Vienna Convention.

Article 4

The present Convention shall supersede any international Conventions in the field of maritime transport which, at the date on which the present Convention is opened for signature, are in force or open for signature, ratification or accession but only to the extent that such Conventions would be in conflict with it; however, nothing in this Article shall affect the obligations of the Contracting Parties to the present Convention to non-Contracting States arising under such international Conventions.

Unlike the regime for the transport of petroleum and petroleum products by sea, which makes the shipowner primarily responsible for accidents during transport, although the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage provides an additional mechanism funded by the refining industry, the regime for the transport of nuclear materials places the burden of compensation for damage on the operators of nuclear facilities.

F. Private International Law or Public International Law?

Compensation mechanisms of the kind we have just discussed, in which private individuals are liable for certain types of international damage, are referred to by many authors as private international law. I disagree with this classification.³⁴ Indeed, these arrangements were created by international law instruments and international conventions and do not aim to provide answers to conflicts between national laws, but rather to guide liability in a direction that

³⁴ See, for example, Alexander Kiss and Dinah Shelton, "International Environmental Law," *Bulletin of Science, Technology & Society* 13, No. 4 (August 1993): 364.

relieves states, to some extent, of what they might otherwise be charged with, and to provide effective ways of resolving difficult issues of determining liability and compensating victims, both public and private. Moreover, contributions by States are not excluded, as is the case with some provisions of the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage and of the Convention on Supplementary Compensation for Nuclear Damages. In my opinion, these legal regimes provide for special compensation rules of international law, and the liability of private individuals does not disqualify them as such. There are other international liability regimes that include or transfer liability to private parties, as is the case with accidents involving hazardous substances, but they are outside the scope of this chapter.

The question that arises is whether the regulations we have outlined are sufficient to ensure that damages are compensated. As far as oil transportation is concerned, it is undeniable that the adoption of mandatory safety measures at the international level has drastically improved conditions in the industry and significantly reduced the number of accidents. However, can we say that the current framework of a combination of private guarantees and government funding is sufficient to deal with the consequences of extremely large disasters?

G. The Problem of Disasters of Great Dimension

On November 13, 2002, the *Prestige* sank off the coast of Galicia, causing an enormous environmental disaster. The ship had 77.000 tons of high-density fuel oil on board.

In 2005, claims were estimated at a minimum of EUR 377.6 million and a maximum of EUR 738.5 million, distributed among the three countries concerned—Portugal, Spain, and France, with Spain by far the most affected. However, the Executive Committee of IOPC Fund estimated that, based on the figures provided by the three governments, the total potential claims could be as high as EUR 1.05 billion.³⁵

Complementing the compensation mechanisms of the International Convention on Civil Liability for Oil Pollution Damage and International

³⁵ IOPC, “Incident Report: Prestige,” <https://www.iopcfunds.org/>, accessed January 5, 2023, <https://www.iopcfunds.org/incidents/incident-map#1916-13-November-2002>.

Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, the Spanish government brought a legal action against the American Bureau of Shipping—the classification society of *Prestige*—on the grounds that it had been society of *Prestige*—on the grounds that it had been negligent in inspecting the ship and had given it a positive score six months before the disaster. The outcome of these proceedings was not favorable to the Spanish government—the New York court where the action was filed declined jurisdiction; after a reversal of that decision by the New York Court of Appeals, the Southern District Court ruled in favor of ABS and dismissed the claims concerning its responsibility for the disaster. Ultimately, most of the damage caused by this disaster remains uncompensated.

On the other hand, the recent Fukushima disaster in Japan, where an earthquake followed by a tsunami caused massive radiation and forced the evacuation of many cities, was a warning signal of the gigantic impact such events can have. In this case, there were no transboundary consequences, but it is not difficult to imagine the problems when such effects occur.

Even if we assume that the transport of nuclear materials does not pose the risks associated with operating a nuclear facility, the consequences can be devastating and go largely undetected by the current mechanisms we have analyzed in this chapter. Because of these risks, many States have argued that the precautionary principle trumps freedom of the seas as set forth in UNCLOS and allows coastal States to restrict shipping through their territorial waters or EEZs.³⁶

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was the first international convention to codify the precautionary principle for pollution prevention. It gives States parties the right to refuse shipments of hazardous waste in the absence of notification by the State of shipment and prior authorization of the shipment by transit States.

As David B. Nixon notes,³⁷ however, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal preempted by two international conventions that do not require notification or prior

³⁶ See, for more information about this issue, David B. Nixon, “Transnational Shipments of Nuclear Materials by Sea: Do Current Safeguards Provide Coastal States a Right to Deny Innocent Passage?,” *Journal of Transnational Law & Policy* 16, No. 1 (2016): 73–99.

³⁷ Nixon, 82.

authorization—the 1993 Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive wastes in Flasks on Board of Ships of the IMO,³⁸ which amended the SOLAS in 1999, and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.³⁹

Two regional conventions between the nations of the Pacific Islands—the Bamako Convention of the OAU and the Waigani Convention—have also incorporated the precautionary principle. The small number of States involved, however, is not sufficient to meet the threshold of *opinio juris*.⁴⁰

H. Conclusion

This chapter analyzes and compares two international regimes that link the responsibilities of private parties and states in compensating victims of accidents related to the maritime transportation of oil, oil products, and nuclear materials. Each of the two regimes has its own logic and is the result of a particular historical process, which explains why the allocation of responsibility is so different. As we have seen in the case of the transportation of petroleum and petroleum products, the transporter is primarily responsible, and in the case of the transportation of nuclear materials, the operator of the facility on whose behalf the transportation is performed is responsible.

In both cases, the inadequacy of these regimes and a certain disproportionality have led to the creation of funds in addition to those available for the collection of compensation. In both cases, the common factor is the role of the States in ensuring that the funds are available.

Recent events have shown that the current regimes are not able to reassure the international community about important events. As for the transportation of oil and oil products, the consequences of the sinking of the *Prestige* are largely uncovered by existing conventional compensation regimes. As for the transport

³⁸ IMO Assembly resolution A.748(18), *Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive wastes in Flasks on Board of Ships*, A/18/RES.748 (November 17, 1993), available at [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.748\(18\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.748(18).pdf).

³⁹ Convention on the prevention of marine pollution by dumping of wastes and other matter, December 29, 1972, 1046 UNTS 15749. 120.

⁴⁰ Nixon, “Transnational Shipments of Nuclear Materials by Sea: Do Current Safeguards Provide Coastal States a Right to Deny Innocent Passage?” 83.

of nuclear materials, especially nuclear waste, governments and national public opinion consider the passage of ships near their coasts to be an unacceptable danger even if such passage is protected by freedom of navigation as provided for in UNCLOS.

The damage to marine life in the event of a shipping accident involving the transport of large quantities of nuclear waste across the continental shelf of a State could be incalculable. So far, no major event of this kind has occurred, but if it does, it is clear that the existing compensation mechanism will not suffice.

It is likely that the international regulatory framework for oil and oil products, as well as for nuclear materials, will change in the near future. In any case, it is very likely that the combination of private and public responsibility in compensating for damage will remain a feature of these regimes, as recommended by the International Law Commission.⁴¹

⁴¹ General Assembly, *Report of the International Law Commission on the work of the fifty-eight session*, May 1 to June 9 and July 3 to August 11, 2006, Supplement No. 10 (A/61/10), pp. 151–165, available at undocs.org/en/A/61/10.

CLEANING LEGACY PLASTIC: THE CASE OF THE OCEAN CLEANUP

João Ribeiro-Bidaoui and Efstahios-Effraim Giannidakis*

A. Introduction

The Ocean Cleanup is a not-for-profit global project, based in Rotterdam, The Netherlands, undertaking what may be considered as the largest high seas cleanup in history. As a matter of fact, it has already removed more than 250.000 kilograms of plastic from the Pacific Ocean, covering 7.322 square kilometers of area, equivalent to 1.262.213 football fields' worth of ocean,¹ while still at the development stage of its technology, and as part of its mission to remove 90% of floating plastic in the Ocean by 2040.² This moon-shot mission is timelier than ever. Around the world, nearly four-hundred and sixty million tons of plastic were used in 2019, a number that is expected to reach 1.231 million tons by 2060.³ In parallel, plastic waste is predicted to increase from three-hundred fifty-three million tons in 2019 to 1.014 million tons in 2060.⁴ Additionally mismanaged waste will increase from seventy-nine million tons in 2019 to one-hundred fifty-three million tons by 2060.⁵ Meanwhile, the plastic waste emitted annually to the hydrosphere is expected to increase from 6.1 million tons to 11.6 million tons by 2060.⁶ Eventually, 22% of the plastic entering the hydrosphere has entered

* The views expressed in this article are the views of the authors and do not necessarily represent the views of Stichting The Ocean Cleanup.

¹ The Ocean Cleanup, "Dashboard" The Ocean Cleanup (blog), 2022, <https://theoceancleanup.com/dashboard/>.

² The Ocean Cleanup, "The World's First Ocean Cleanup System Launched From San Francisco," The Ocean Cleanup, September 8, 2018, <https://theoceancleanup.com/press/press-releases/the-worlds-first-ocean-cleanup-system-launched-from-san-francisco/>.

³ OECD, *Global Plastics Outlook: Policy Scenarios to 2060* (OECD, 2022), Chapter 3.1, https://www.oecd-ilibrary.org/environment/global-plastics-outlook_aa1edf33-en.

⁴ OECD, Chapter 4.

⁵ OECD, Chapter 4.

⁶ OECD, Chapter 5.1.

the Ocean, a number which will increase to 29% by 2060—a fraction of which reaching ABNJ.⁷

Plastic pollution is not only a pressing issue but also a persistent one: relevant projections by the OECD demonstrate that even if plastic production was completely halted by 2060, plastic produced pre-2060 would continue to generate waste well into the twenty-second century.⁸

Considering the above, only immediate and effective actions can address the plastic crisis. It is against that background that one must consider the activities of The Ocean Cleanup and its twofold approach to the problem—closing the leakage from rivers across the world into the Ocean and cleaning legacy plastic pollution already in the Ocean gyres.⁹ Indeed, the expertise developed, and the data collected by The Ocean Cleanup may provide valuable guidance in a watershed moment for tackling legacy plastic pollution. Last year marked not only forty years since the signing of UNCLOS, but also a turning point in the international community's efforts to address marine plastic pollution. For instance, the political declaration resulting from the 2022 United Nations Ocean Conference, held in Lisbon, recognizes the importance of the organization's mission, when stressing the need for “eliminating marine plastic litter [...] [and of a] sound remediation of marine plastic litter that is already in marine environments.”¹⁰ Recently, the Conference of the Parties to the CBD set out an ambitious plan for parties to immediately initiate efforts directed towards “preventing, reducing, and working towards

⁷ OECD, Chapter 5.1.

⁸ OECD, Chapter 5.1. Aiming to examine the future of plastic production and pollution, the OECD identified three projections for plastic consumption by 2060 (baseline model, regional action policy package, global ambition policy package). In the baseline model, reflecting current policies, the OECD estimates not only that plastic consumption is expected to increase, but also that its implications for the environment and the economy will be aggravated. The Regional Action policy package includes policies to reduce plastic demand and production, improve recycling, and close leakage pathways while focusing on OECD countries. The Global Ambition package involves ambitious circular policies that diminish plastic leakage and minimize mismanaged plastic waste, focusing equally on OECD members and non-members. It shall be noted that in all cases it is supported that plastic production and consumption will increase compared to 2019 levels and that significant resources and international cooperation will be needed to tackle plastic pollution. Even in the best-case scenario, more plastic trash is expected to be generated in the future [OECD, Chapter 7.]

⁹ Boyan Slat, “Why We Must Clean the Ocean Garbage Patches,” *The Ocean Cleanup* (blog), September 12, 2021, <https://theoceancleanup.com/updates/why-we-must-clean-the-ocean-garbage-patches/>.

¹⁰ United Nations, *Our ocean, our future, our responsibility*, A/CONF.230/2022/12 (June 17, 2022), available at undocs.org/en/A/CONF.230/2022/12, p. 5, para. 13(e).

eliminating plastic pollution.”¹¹ Most importantly though, the United Nations Environmental Assembly called upon states to develop an internationally legally binding instrument on plastic pollution, including in the marine environment, to entail provisions pertinent to promoting national and international cooperative measures for reducing existing plastic pollution in the marine environment.¹² On that matter, and in the context of the First Intergovernmental Negotiating Committee, the Federated States of Micronesia (on behalf of the Pacific Small Island Developing States), Peru, Pakistan, Iran, and Cameroon called for legacy plastic pollution to be addressed in the instrument to be drafted.¹³ Such political statements will potentially prompt a discussion on whether there should be an international obligation of legal nature to cleanup legacy plastic pollution. The experience gained, the data gathered and the lessons learned by The Ocean Cleanup may inform and guide such discussions.

This chapter analyses the concrete contributions of The Ocean Cleanup to restore an Ocean free from plastic pollution. In Section A, work undertaken to intercept plastic debris in rivers—using The Ocean Cleanup’s Interceptor portfolio—is discussed, delving into research conducted in the area of riverine plastic pollution and the unequal distribution of plastic emissions from rivers in different parts of the world. Towards that, the different types of Interceptors developed thus far, their characteristics, and their impact in the respective areas of deployment are also examined. Section B defines the concept of legacy plastic and touches upon marine plastic pollution, in particular the composition of plastic waste in the Ocean, its concentration in subtropical gyres, and its impact on the environment, humans, and the economy. This part also discusses the different Ocean cleanup systems that the organization has developed to tackle legacy plastic pollution. In Section C, the chapter discusses the development of research on plastic pollution and the respect for the rule of law, as guiding

¹¹ Conference of the Parties to the CBD, *Kunming-Montreal Global biodiversity framework. Draft decision submitted by the President*, CBD/COP/15/L.25, December 18, 2022, p. 10, available at <https://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf>.

¹² United Nations Environment Programme, *UNEA Resolution 5/14 entitled “End plastic pollution: Towards an international legally binding instrument”*, UNEP/PP/OEWG/1/INF/1, May 10, 2022, p. 4, para. 3(c), available at https://wedocs.unep.org/bitstream/handle/20.500.11822/39812/OEWG_PP_1_INF_1_UNEA%20resolution.pdf.

¹³ International Institute for Sustainable Development, “Plastics INC-1 Highlights. A Reporting Service for Environment and Development Negotiations,” *Earth Negotiations Bulletin*, December 1, 2022, 2.

forces of the organization's actions—these ideas are also closely linked with the obligations provisioned in the BBNJ Agreement. Towards that, the different ways through which The Ocean Cleanup advances and disseminates expertise in the field are discussed, followed by a detailed account of the obligations the organization has submitted to, under the innovative Agreement between the Kingdom of the Netherlands and The Ocean Cleanup, and how that relates to the protection of biodiversity in ABNJ.

B. Contributing to Closing the Tap: Rivers

In this part, the steps taken to reduce the amount of plastic entering the sea from rivers are discussed. In particular, the role of rivers in plastic pollution, the diverse types of intercepting low-tech and high-tech technologies that have been employed, their functions, as well as the waste management approaches, are analyzed.

1. Understanding riverine plastic pollution

Recognizing the need to contribute to “closing the tap” of plastic pollution into the Ocean, and based on evidence, The Ocean Cleanup expanded its activities to the downstream interception of such plastic flowing on rivers before it reaches the Ocean¹⁴ without prejudice of other necessary actions and initiatives upstream and midstream. A model developed by their research team identified 1.000 rivers as emitters of 80% of plastic pollution reaching the ocean. This model is being used as a compass by the organization in its rivers approach.¹⁵ It demonstrates that, although the problem of plastic pollution is much more distributed than previously thought it was, distribution is still unequal—1% of the world's rivers are responsible for transmitting 80% of the plastic that makes it to the Ocean.¹⁶ This may be attributed to factors such as (i) geography, *e.g.*, as indicated in the figure below, in an archipelagic state, such as the Philippines, plastic has more chances to reach the Ocean compared to a continental state such as India, which

¹⁴ Boyan Slat, “Why Rivers Are the Key to Rapidly Stopping Plastic Pollution,” *The Ocean Cleanup* (blog), May 6, 2021, <https://theoceancleanup.com/updates/why-rivers-are-the-key-to-rapidly-stopping-plastic-pollution/>.

¹⁵ Lourens Meijer et al., “More than 1000 Rivers Account for 80% of Global Riverine Plastic Emissions into the Ocean,” *Science Advances* 7 (April 30, 2021): 5.

¹⁶ Slat, “Why Rivers Are the Key to Rapidly Stopping Plastic Pollution.”

explains why the Philippines emits more plastic into the Ocean, although India generates more mismanaged waste; (ii) GDP per capita—the majority of the plastic emissions can be traced to emerging economies where people can afford to consume a lot of plastic, but an adequate waste management system is still lacking—as illustrated in Figure 1.¹⁷

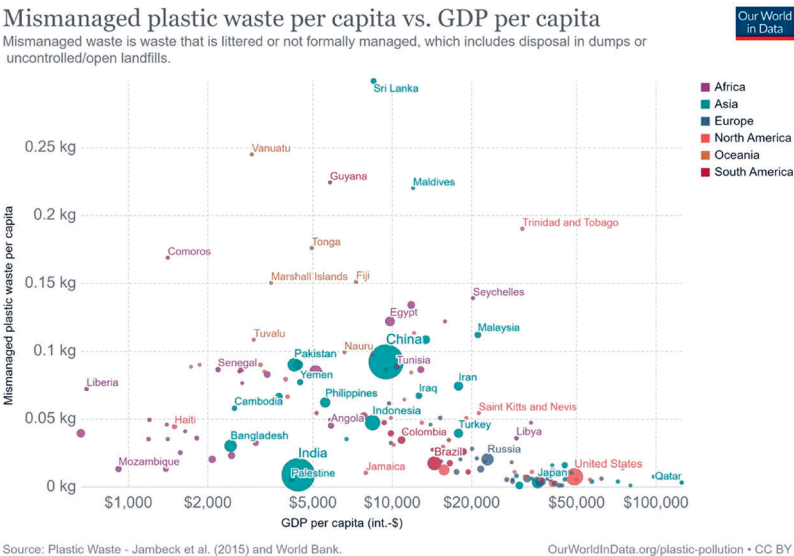


Figure 1. Amount of mismanaged plastic waste in different countries in relation to GDP per capita and mismanaged plastic waste per capita¹⁸

2. One possible, complementing, and effective solution: intercepting plastic downstream

Based on the mentioned research findings, The Ocean Cleanup launched a technology named Interceptor Original in 2019, followed by different types of Interceptors, that provide an efficient and quick solution to addressing riverine plastic pollution and preventing plastic from entering the Ocean. While ideally to be deployed as part of more holistic approaches, this solution is

¹⁷ Slat.

¹⁸ Slat.

more affordable, fast, and efficient than solely focusing on upstream measures, *e.g.*, banning the use of some plastics, improving waste management systems or developing biodegradable materials. Those instances will require lengthy, but necessary, processes, including complex social and economic challenges. Not to mention the inescapable vested interests of the various stakeholders of the six-hundred-billion-dollar plastic industry, arguably motivated to slow down the process.¹⁹ In such a context deploying Interceptors in hotspots of plastic pollution can halt the consequences of plastic pollution, while more long-term structural changes are implemented. Interceptors are designed to be as autonomously operated as possible and to not interfere with marine ecosystems or marine traffic.²⁰ More information on the Interceptors employed so far in various locations around the globe may be found in the table below, while two more interceptors are planned to be deployed in 2023, in Cisadane, in Jakarta (Indonesia) and in the Chao Praya River, in Bangkok (Thailand):²¹

¹⁹ The Ocean Cleanup, “The Ocean Cleanup Unveils Plan to Address the Main Source of Ocean Plastic Pollution: Rivers,” *The Ocean Cleanup* (blog), October 26, 2019, <https://theoceancleanup.com/updates/the-ocean-cleanup-unveils-plan-to-address-the-main-source-of-ocean-plastic-pollution-rivers/>; Slat, “Why Rivers Are the Key to Rapidly Stopping Plastic Pollution.”

²⁰ The Ocean Cleanup, “The Ocean Cleanup Unveils Plan to Address the Main Source of Ocean Plastic Pollution: Rivers.”

²¹ The Ocean Cleanup, “Dashboard”.

Interceptor	Location	Launch
001	Cengkareng Drain, Jakarta Indonesia	April 1, 2019 ²²
002	Klang River, Klang, Malaysia	August 20, 2022 ²³
003	Can Tho River, Can Tho, Viet Nam	February 24, 2022 ²⁴
004	Rio Ozama, Santo Domingo, Dominican Republic	May 11, 2022 ²⁵
005	North Harbour Road, Klang River, Klang, Malaysia	June 15, 2022 ²⁶
006	Las Vacas River, Guatemala City, Guatemala	May 11, 2022 ²⁷
007	Ballona Creek, Los Angeles County, United States of America	October 6, 2022 ²⁸
008	Kingston Harbour, Jamaica	November 24, 2021 ²⁹
009	Kingston Harbour, Jamaica	November 24, 2021 ³⁰
010	Kingston Harbour, Jamaica	November 24, 2021 ³¹
011	Kingston Harbour, Jamaica	December 20, 2022 ³²
012	Kingston Harbour, Jamaica	March 20, 2023 ³³

* Trial phase initiated in May 2022, and a second iteration was installed in June 2023, the Interceptor Barricade.

Despite their very recent conception and their deployment in diverse settings, Interceptors have been successful in preventing large amounts of trash and plastic from entering the Ocean. At the time of writing, more than 5.000.000 kilograms of trash have been intercepted.³⁴ Part of the success of The Ocean Cleanup in intercepting plastic before it reaches the Ocean is to be attributed to the development of different technological solutions accounting for the different conditions in the areas they are placed.³⁵ Indeed, no two rivers are

²² The Ocean Cleanup.

²³ The Ocean Cleanup.

²⁴ The Ocean Cleanup.

²⁵ The Ocean Cleanup.

²⁶ The Ocean Cleanup.

²⁷ The Ocean Cleanup.

²⁸ The Ocean Cleanup.

²⁹ The Ocean Cleanup.

³⁰ The Ocean Cleanup.

³¹ The Ocean Cleanup.

³² The Ocean Cleanup.

³³ The Ocean Cleanup.

³⁴ The Ocean Cleanup, “Dashboard”.

³⁵ The Ocean Cleanup, “Closing the Tap: Tackling Trash in Rivers,” *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/rivers/>.

alike, since factors such as river depth, width, flow, speed, debris composition, seasonality, maritime traffic and tides significantly impact the success of a river intervention.³⁶ For example, although the Klang River, where Interceptor 002 operates, may experience tidal differences of up to five meters, this is not the case for Rio Ozama, where Interceptor 004 operates.³⁷

Recent practice confirms that not only different conditions are in place for different rivers but also variables such as water pressure or plastic density may shift rapidly. In May 2022, tests of the Interceptor 006 Trashfence began in Guatemala.³⁸ Interceptor 006 stretches around fifty meters wide and stands eight meters tall.³⁹ Deployed in the Rio Las Vacas, a tributary of the Rio Motagua, the Trashfence was put in use in a location subject to massive water pressure during the rainy season and one of the highest plastic densities in the world—annually, an estimated 20,000 tons (or approximately 2% of the global plastics emissions in the Ocean) flows through Rio Motagua to the Caribbean sea.⁴⁰ Despite recent undermining caused by flash floods and increased water pressure caused by debris carried by the river, The Ocean Cleanup team implemented the lessons learned during the experimentation process and has now deployed the Interceptor Barricade in the same river. The Interceptor Barricade is a system of extremely heavy-duty floating booms placed throughout the river to efficiently capture plastic, while allowing the water to pass freely below the surface.⁴¹

The different characteristics of the Interceptors developed this far, to accommodate for the different conditions applicable in The Ocean Cleanup's areas of operation, namely Interceptor Original, Interceptor Barrier, Interceptor Tender, Interceptor Trashfence and Interceptor Barricade, are examined below: in particular, this part demonstrates how variables such as

³⁶ The Ocean Cleanup.

³⁷ The Ocean Cleanup, "Expanding the Interceptor Family," *The Ocean Cleanup* (blog), December 31, 2021, <https://theoceancleanup.com/updates/expanding-the-interceptor-family/>.

³⁸ Boyan Slat, "The Ocean Cleanup Trials New Interceptor in World's Most Polluting River," *The Ocean Cleanup* (blog), June 1, 2022, <https://theoceancleanup.com/updates/the-ocean-cleanup-trials-new-interceptor-in-worlds-most-polluting-river/>.

³⁹ Slat.

⁴⁰ Slat.

⁴¹ "Introducing The Interceptor Barricade: The Ocean Cleanup Returns to Guatemala," *The Ocean Cleanup*, accessed 28 July 2023, <https://theoceancleanup.com/updates/introducing-the-interceptor-barricade-the-ocean-cleanup-returns-to-guatemala>. See also, "The Ocean Cleanup Trials New Interceptor in World's Most Polluting River".

the width of a riverbed, or the volume of plastic debris transferred by a river, influence the solutions developed by the organization to halt riverine plastic emissions from entering the Ocean and how it approaches each project based on research and development.

(i) Interceptor Original

The Ocean Cleanup’s first-ever river cleanup technology—the Interceptor Original—is a scalable and energy-neutral solution to prevent plastic from entering the Ocean. Being 100% solar powered and boasting batteries allows the Interceptor Original to function undisrupted.⁴²

Interceptors are strategically deployed to maximize the amount of plastic collected. In such cases, factors such as flow velocity, the river’s width, as well as the presence of a plastic *hotline*, *i.e.*, “a distinguishable, concentrated path of debris as it flows through the river” are considered.⁴³ In the absence of a plastic *hotline*, a barrier placed upstream may artificially create this effect.⁴⁴ The final placement of the Interceptor Original is determined in cooperation with local authorities aiming to strike a balance between maximal extraction output and minimal interference with vessel traffic in the river.⁴⁵

A barrier traps trash floating along the current and eventually leads them to the opening of the Interceptor. Then a conveyor belt extracts waste from the water and moves it towards the shuttle. The shuttle distributes waste to six dumpsters using sensor data until they reach full capacity. Each Interceptor Original can store up to fifty cubic meters of waste before it needs to be emptied. The Interceptor Original automatically informs local operators when it is nearly full, so that they remove the barge, bring it to the shore, empty the dumpsters, send off the debris to local facilities, and then return the barge to the Interceptor. Meanwhile, Interceptors can continue catching trash, while their bins are emptied.⁴⁶

⁴² The Ocean Cleanup, “The Ocean Cleanup Unveils Plan to Address the Main Source of Ocean Plastic Pollution: Rivers.”

⁴³ The Ocean Cleanup, “How It Works: Interceptor Original,” *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/rivers/interceptor-original/>.

⁴⁴ The Ocean Cleanup.

⁴⁵ The Ocean Cleanup.

⁴⁶ The Ocean Cleanup.

At the time of writing, Interceptors Original are deployed in Indonesia (001), Malaysia (002, 005), Viet Nam (003), the Dominican Republic (004), the United States of America (007), while two more are to be deployed in Indonesia and in Thailand.⁴⁷

(ii) Interceptor Barrier

The Interceptor Barrier is a standalone floating barrier anchored in a U-shape and placed around the mouth of a small river, like the rainwater drains—gullies—in Kingston Harbour, Jamaica. Unlike the Interceptor Original, most of the barrier employed in this system is permeable and is thereby optimized to efficiently intercept riverine emissions.⁴⁸

(iii) Interceptor Tender

The Interceptor Tender is a small barge—developed in collaboration with Berky GmbH—designed to work in parallel with Interceptor Barriers. Using a conveyor belt, they remove trash from the barrier and offload it to onshore dumpsters. They are capable of servicing multiple Barriers, which is anticipated to be particularly useful as multiple Interceptor Barrier deployments in close proximity are expected. This allows for reducing costs, as the extraction/offloading equipment is shared amongst multiple sites.⁴⁹

Currently, a combination of Interceptors Barrier and Interceptor Tender—Interceptors 008, 009, 010, 011—is deployed in Kingston Harbour in Jamaica, where rivers would be too narrow for an Interceptor Original to be deployed.⁵⁰ The proposal for this pilot project was awarded by the Benioff Ocean Initiative.⁵¹

⁴⁷ The Ocean Cleanup, “Dashboard.”

⁴⁸ The Ocean Cleanup, “Closing the Tap: Tackling Trash in Rivers.”

⁴⁹ The Ocean Cleanup.

⁵⁰ The Ocean Cleanup, “Dashboard”; Katie Brigham, “How Three Companies Are Cleaning up the World’s Plastic-Choked Rivers,” *CNBC*, March 8, 2022, Online edition, <https://www.cnbc.com/2022/08/03/how-to-clean-the-worlds-most-polluted-rivers.html>.

⁵¹ The Ocean Cleanup, “Dashboard.”

(iv) Interceptor Trashfence

This pilot solution consists of a waste-capturing chain-link fence anchored to the banks and beds of rivers to intercept emissions.⁵² Inspired by avalanche protection systems, this Interceptor was designed for highly polluted and hard-to-reach locations prone to flash floods. Once water levels recede, excavators remove the trash accumulated in the location.⁵³

(v) Interceptor Barricade

The Interceptor Barricade consists of heavy-duty floating booms placed throughout the river to efficiently capture plastic, while allowing the water to pass freely below the surface. The first Interceptor Barricade was placed in the Rio Las Vacas, close to the city of Chinautla, north of Guatemala City.

The Barricade is a two-boom system: one upstream with a length of 51 meters and a second further downstream at 107 meters long to capture anything that the upstream boom cannot. The booms are each chained to concrete foundations on the riverbank. By anchoring the booms using foundations that are on dry land (rather than on the riverbed, as with the Trashfence), the risk of erosion is significantly mitigated. The foundations consist of large concrete dead weight anchors (for which a total of 144 cubic meters of concrete will be poured), each secured using six 8.5-meter-deep piles.

This technology is currently being piloted in close coordination with the Guatemalan government.⁵⁴

3. Cooperation and consortia with local partners

The Ocean Cleanup neither operates the Interceptors nor manages their extractions.⁵⁵ This task is undertaken by local partners, authorities or other entities present on the ground. For example, Interceptors 008, 009, 010, and 012

⁵² The Ocean Cleanup, “Closing the Tap: Tackling Trash in Rivers.”

⁵³ Brigham, “How Three Companies Are Cleaning up the World’s Plastic-Choked Rivers.”

⁵⁴ Ministerio de Ambiente y Recursos Naturales del Gobierno de Guatemala, “Ministro Mario Rojas y Boyan Slat, CEO de The Ocean Cleanup ratifican trabajo en conjunto,” <https://guatemala.gob.gt>, June 15, 2022, <https://guatemala.gob.gt/ministro-mario-rojas-y-boyan-slat-ceo-de-the-ocean-cleanup-ratifican-trabajo-en-conjunto/>.

⁵⁵ The Ocean Cleanup, “Closing the Tap: Tackling Trash in Rivers.”

are operated by Clean Harbours Jamaica Ltd and the Grace Kennedy Foundation, while Interceptor 004 is operated by the Dominican Navy and the local office of the UNDP.⁵⁶

Noteworthy is also the recent global partnership established between UNDP and The Ocean Cleanup which will attempt to replicate the experience in the Dominican Republic across the world and aimed at reducing

“leakages of plastics into marine ecosystems by boosting policies and behavior change aimed at advancing sound plastic waste management systems and reducing overall plastic pollution, and accelerating the deployment of interception technologies in rivers to end marine plastic pollution.”⁵⁷

C. Cleaning Legacy Plastic Pollution: Ocean Gyres

Although intercepting plastic in rivers is an important part of the solution to reduce marine plastic pollution, cleaning legacy Ocean floating plastic is a prerequisite to Ocean restoration. Trillions of pieces of accumulated floating plastic debris are to be found on the surface of our Ocean today. The term *legacy plastic pollution in the ocean* should be referred to as including those pieces of accumulated plastic debris either trapped in the Ocean gyres over the passage of time, or those floating in ABNJ and that eventually reach shores distant from its leakage point, like the beaches of the small islands pacific states and others.

Of particular concern, is the *legacy* plastic gathering in massive gyres, where it has accumulated over many years, forming vast, growing expanses of floating plastic waste, spanning hundreds of kilometers. Due to circular currents, plastic is accumulating in five subtropical oceanic gyres.⁵⁸ The largest, and most studied one is the Great Pacific Garbage Patch.⁵⁹ Approximately 1.8 trillion pieces—eighty-thousand tones—of accumulated plastic, spanning an area three times the size of France (two times the size of Texas) form the Great Pacific Garbage Patch,

⁵⁶ The Ocean Cleanup, “Dashboard.”

⁵⁷ Press Release, “UNDP and The Ocean Cleanup Team Up to Tackle Plastic Pollution”, *The Ocean Cleanup*, accessed July 28, 2023, <https://theoceancleanup.com/press/press-releases/undp-and-the-ocean-cleanup-team-up-to-tackle-plastic-pollution/>

⁵⁸ United Nations Ocean Conference, “Facts and Figures: Marine Pollution,” *United Nations* (blog), 2022, <https://www.un.org/en/conferences/ocean2022/facts-figures>.

⁵⁹ Slat, “Why We Must Clean the Ocean Garbage Patches.”

located between Hawaii and California.⁶⁰ Once plastic makes its way to the GPGP it should be expected to stay there for a long time, the only nearby shorelines being remote islands.⁶¹ According to relevant data, close to 0.1% of the GPGP's mass is washed ashore in Hawaii annually.⁶²

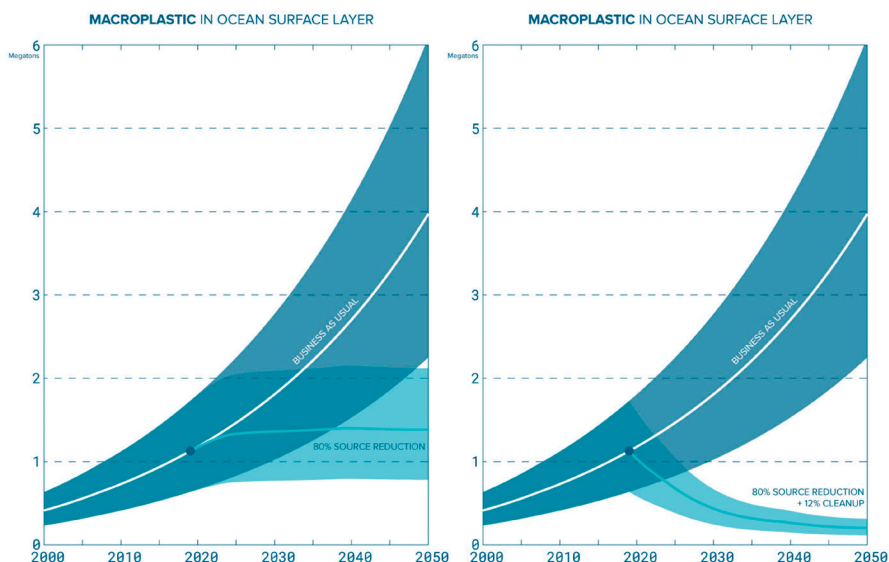


Figure 2. Macroplastic in Ocean surface layer post 80% source reduction and post 80% source reduction and 12% cleanup⁶³

Addressing legacy pollution in these gyres is both important and urgent.⁶⁴ As time passes the GPGP will not only continue to significantly impact the marine ecosystem below it but also the more difficult its cleaning will become.⁶⁵ The rays of the sun and the movement of the sea accelerate the breakdown of plastic into smaller yet still harmful compounds that then disperse in the

⁶⁰ United Nations Ocean Conference, "Facts and Figures: Marine Pollution."

⁶¹ Slat, "Why We Must Clean the Ocean Garbage Patches."

⁶² Slat.

⁶³ Slat.

⁶⁴ Slat.

⁶⁵ Slat.

water column, making their way to as much as 2,000 meters below sea level.⁶⁶ This increases their impact on the marine ecosystem under the GPGP as well as the volume of water to eventually be cleaned. Considering the above, an approach that is both effective and immediate is needed to restore harm caused to the Ocean by plastic pollution.⁶⁷

1. *The importance and urgency of cleaning up legacy Ocean floating plastic pollution*

Although only a limited fraction of plastic waste makes its way to the high seas—in ABNJ—the consequences of marine plastic pollution are immense: nearly seven-hundred marine species have been affected by plastic pollution, more than one-hundred of which are registered on the IUCN Red List of Threatened Species as critically endangered, endangered, vulnerable, or near threatened,⁶⁸ such as the critically endangered Hawaiian Monk Seal (*monachus schauinslandi*), Hawksbill Sea Turtle (*eretmochelys imbricata*), and Galápagos petrel (*pterodroma phaeopygia*).⁶⁹ The Ocean Cleanup crews have experienced first-hand the harmful impact plastic pollution may have on marine life. Autopsies conducted on two dead juvenile loggerhead turtles revealed multiple plastic fragments in the animals' digestive tracts.⁷⁰ In both cases, fragments ranged between two millimeters and thirty millimeters, while a two-hundred millimeters long piece of monofilament fishing line was found in the intestines of one of the turtles.⁷¹ The death of both animals has been attributed to extensive exposure to Ocean plastic.⁷²

Additionally, as plastic waste may attract toxic chemicals that could later be consumed by fish, this raises concerns for the health of three billion people

⁶⁶ Slat.

⁶⁷ Slat.

⁶⁸ A comprehensive overview of the global conservation status of animal, plant, and fungi species is provided by the IUCN Red List of Threatened Species. It provides a comprehensive overview of the global conservation status of animal, fungi, and plant species. Established in 1964, and regularly updated, it entails information such as the range and population size of different species. See IUCN, "Background & History," *The IUCN Red List of Threatened Species* (blog), September 23, 2022, <https://www.iucnredlist.org/about/background-history>.

⁶⁹ S. Gall and R. Thompson, "The Impact of Debris on Marine Life. Marine Pollution Bulletin," 2015, 175.

⁷⁰ The Ocean Cleanup, "System 002: Mid-Term Evaluation," *The Ocean Cleanup* (blog), January 2022, <https://theoceancleanup.com/updates/system-002-mid-term-evaluation/>.

⁷¹ The Ocean Cleanup.

⁷² The Ocean Cleanup.

relying on seafood as their primary source of protein.⁷³ Research indicates that exposure to microplastics can be toxic for humans even in low doses, particularly affecting their endocrine system.⁷⁴

But legacy plastic also harms national economies and obstructs the shipping industry, representing not only a significant navigational and safety hazard but also an increasingly economic problem. The cost of plastic pollution can be indirect—its impact on public health, the marine environment, or devaluation of real estate—but also direct—loss of revenue from tourism, cleanup costs undertaken by governments, and the impact on fisheries and aquaculture.⁷⁵ Plastic pollution diminishes the aesthetic value of the environment and increases health and safety risks, being particularly harmful to marine tourism.⁷⁶ Indicatively, the impact of plastic pollution on eighty-seven coastline countries is estimated to be around nineteen billion USD.⁷⁷ Plastic pollution also impacts the shipping industry, as plastic debris may be entangled in propellers, causing safety risks⁷⁸ and costly maritime traffic idleness. Plastic pollution is also responsible for additional costs associated with fouled propellers, damaged engines, litter removal, and waste management in harbours.⁷⁹ Additionally, in the fishing industry, plastic debris, particularly floating nets and ropes, may foul active fishing gear.⁸⁰

The importance of realizing the true cost of floating plastic in the Ocean is a key aspect to take into consideration when confronting the eventual operational cost of a large-scale cleanup, which may be considered a negligible portion of all environmental, health and economic costs over the coming decades.

⁷³ Slat, “Why Rivers Are the Key to Rapidly Stopping Plastic Pollution.”

⁷⁴ David Azoulay et al., “Plastic & Health The Hidden Costs of a Plastic Planet” (Plastic & Health: The Hidden Costs of a Plastic Planet, February 2019), <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>.

⁷⁵ Deloitte, “The Price Tag of Plastic Pollution-An Economic Assessment of River Plastic” (Deloitte, 2017), <https://www2.deloitte.com/content/dam/Deloitte/my/Documents/risk/my-risk-sdg14-the-price-tag-of-plastic-pollution.pdf>.

⁷⁶ Deloitte.

⁷⁷ Slat, “Why We Must Clean the Ocean Garbage Patches.”

⁷⁸ Wageningen University & Research, “Dossier: Plastic Waste,” *Wageningen University & Research* (blog), 2022, <https://www.wur.nl/en/dossiers/file/plastic-waste-2.htm>.

⁷⁹ L. Jęftic et al., *Marine Litter: A Global Challenge* (Nairobi, Kenya: Regional Seas, United Nations Environment Programme, 2009).

⁸⁰ Environmental Investigation Agency, “Nothing Fishy about It: Meaningful Measures on Fishing Gear at IMO,” April 2020, <https://eia-international.org/wp-content/uploads/EIA-report-Nothing-Fishy-About-It-IMO-Briefing-single-pages-for-print.pdf>.

2. The concentration of plastic in subtropical gyres, the composition of the garbage patches: identifying areas for action.

Evidence collected by The Ocean Cleanup in the GPGP suggests a strong correlation between plastic production and marine plastic pollution.⁸¹ Such data corroborates the argument that plastic pollution is persistent.⁸² The gap in identified items manufactured after 2010 that may be observed in Figure 3 is explained by the fact that plastic may take up to seven years to travel to the Great Pacific Garbage Patch after entering the hydrosphere. Indicatively, around half of the plastic identified was produced before the 1990s, while the oldest object to be retrieved was a buoy from 1966. Such findings were supported by relevant laboratory experiments which confirmed that plastic observed at sea loses less than 1% of its weight per year, while even under strong UV radiation, plastic may take centuries to degrade.⁸³

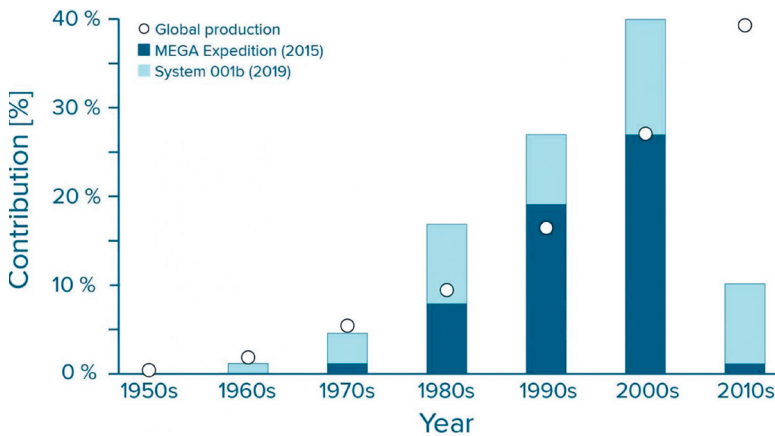


Figure 3. Connection between global plastic production and plastic waste retrieved from the Great Pacific Garbage Patch during the MEGA Expedition (2015) and System 001b deployment (2019).⁸⁴

In addition, it should be noted, that cleanup operations allow to accurately study and determine the quantity and persistence of plastic, as it is important

⁸¹ Slat, "Why We Must Clean the Ocean Garbage Patches."

⁸² Slat.

⁸³ Slat.

⁸⁴ Slat.

to study its composition, enabling evidence-based policies and the development of more fit-for-purpose cleanup systems. A recent study, undertaken by The Ocean Cleanup, and published in September 2022 in *Scientific Reports*, discusses the composition, origins, and age of plastic debris accumulating in the GPGP and highlights the contribution of abandoned, lost, or otherwise discarded fishing gear in the GPGP. Two important points are made in this piece. *First*, between 75% and 86% of the floating plastic mass in the GPGP can be considered abandoned, lost, or otherwise discarded fishing gear. According to the findings of this report, most of the floating plastic mass in the GPGP consists of hard plastic coming from fishing vessels as well as floating nets and ropes.⁸⁵ This includes aquaculture gear, fishing gear other than nets and ropes—lobster and fish tags or eel traps—floats, and buoys.⁸⁶ *Second*, nearly 90% of the debris of which the origin could be identified is traced to five economies. The paper identified that most of the debris identified in the GPGP originated from Japan (34%), China (32%), the Korean peninsula (10%), the United States of America (7%), and Chinese Taipei (6%).⁸⁷ A plethora of evidence was used to identify the origin of the items retrieved such as language, brands, or addresses mentioned on them.⁸⁸ Particularly for Japan, its increased contribution to plastic pollution may be attributable to its large fishing industry, as well as to the release of anthropogenic debris after the 2011 Tohoku Tsunami.⁸⁹

Another important aspect that impacts the efficacy and efficiency of The Ocean Cleanup systems is the detection of the so-called plastic hotspots. Having collected data on the accumulation of plastic in garbage patches, The Ocean Cleanup can identify areas of operation that allow it to maximize the amount of plastic collected. *First*, using computational modelling, The Ocean Cleanup crew estimates in which areas the circulating currents in the GPGP create plastic hotspots.⁹⁰ Toward identifying optimal locations for cleanup operations, AI is used while further research is conducted in the field

⁸⁵ Laurent Lebreton et al., “Industrialised Fishing Nations Largely Contribute to Floating Plastic Pollution in the North Pacific Subtropical Gyre,” *Scientific Reports* 12 (September 1, 2022): 7.

⁸⁶ Lebreton et al., 5.

⁸⁷ Lebreton et al., 4.

⁸⁸ Lebreton et al., 4.

⁸⁹ Lebreton et al., 9.

⁹⁰ The Ocean Cleanup, “Oceans. Cleaning up to Garbage Patches. How It Works,” <https://theoceancleanup.com/>, 2022, <https://theoceancleanup.com/oceans/>.

of spaceborne plastic detection in collaboration with ESA, ARGANS Ltd., and other spatial sector organizations.⁹¹ Placing the cleanup system in such strategic locations, and maintaining a relative speed difference between the cleanup system and floating plastic, the retention zone concentrates plastic much as a coastline would do.⁹² When the system is full, plastic is transferred onboard the vessel for initial sorting and to be later brought to shore for recycling.⁹³

3. Systems developed by The Ocean Cleanup: from the North Sea test to System 03

In its effort to restore the Ocean from plastic pollution, The Ocean Cleanup has developed different cleanup systems. In developing these systems, the organization aimed at minimizing the system's adverse effects on the marine environment while ensuring safety at sea.

In June 2016, the organization unveiled its first cleanup system to be tested in the North Sea, becoming the first ever cleanup system to be tested at sea.⁹⁴ The system consisted of a long-floated barrier that would passively collect floating plastic and debris, powered by the North Sea currents.⁹⁵ Located twelve nautical miles off the Dutch coast, it would be positioned there for twelve months to test how its floating barrier fares in extreme weather at sea, similar to those applicable at the GPGP.⁹⁶ This attempt would not only test the novel technology used by The Ocean Cleanup but would also allow the organization to gain experience in the Ocean deployment of a cleanup array.⁹⁷ Although extreme weather conditions eventually undermined the system's efficiency, The Ocean Cleanup adjusted its design to adapt to the lessons learned from these initial tests, launching new prototypes in 2017 and 2018.⁹⁸ Overall, the experience gained from 2016 to

⁹¹ Robin de Vries, "Using AI To Monitor Plastic Density in the Ocean," *The Ocean Cleanup* (blog), January 26, 2022, <https://theoceancleanup.com/updates/using-artificial-intelligence-to-monitor-plastic-density-in-the-ocean/>; Robin de Vries, "Towards Spaceborne Detection of Ocean Plastic," *The Ocean Cleanup* (blog), April 9, 2021, <https://theoceancleanup.com/updates/towards-spaceborne-detection-of-ocean-plastic/>.

⁹² The Ocean Cleanup, "Oceans. Cleaning up to Garbage Patches. How It Works."

⁹³ The Ocean Cleanup.

⁹⁴ The Ocean Cleanup, "The Ocean Cleanup Unveils Plan to Address the Main Source of Ocean Plastic Pollution: Rivers."

⁹⁵ The Ocean Cleanup.

⁹⁶ The Ocean Cleanup.

⁹⁷ The Ocean Cleanup, "First North Sea Prototype," *The Ocean Cleanup* (blog), 2016, <https://theoceancleanup.com/milestones/first-north-sea-prototype/>.

⁹⁸ The Ocean Cleanup, "Second North Sea Prototype to Be Tested in August," *The Ocean Cleanup* (blog), July 18, 2017, <https://theoceancleanup.com/updates/second-north-sea-prototype-to-be-tested-in-august/>;

2018 was fundamental in the design of System 001, the first cleanup system to be trialed in the GPGP.⁹⁹

Following two-hundred seventy-three scale models, six at-sea prototypes, the deployment of thirty vessels, and an airplane to comprehensively map the GPGP, and after multiple technological iterations, The Ocean Cleanup initiated the construction of its first cleanup system.¹⁰⁰ Built in California, System 001, named *Wilson*, was launched.¹⁰¹ After four months in the GPGP, the system's stability, configuration, and ability to orient with the wind were confirmed, while no environmental issues were detected.¹⁰² Nonetheless, the system's ability to retain plastic was compromised, when a fatigue fracture caused an eighteen-meter section of the system to detach, leading to Wilson's safe return to shore in Hawaii in 2019.¹⁰³ This initial launch provided the team with valuable insights into the system's performance while deployed at the GPGP, which would allow The Ocean Cleanup to optimize its technology before launching System 001b.¹⁰⁴

Lessons learned from the launch of System 001 were incorporated into the development of System 001b, launched only four months after System 001's return to Hawaii.¹⁰⁵ In particular, a parachute anchor configuration was added to the initial design to facilitate the retention of plastic in the designated area, while a larger cork line was installed to prevent plastic from overtopping the floating barrier.¹⁰⁶ System 001b is the first ever cleanup system to capture plastic debris from the GPGP, contributing this way to Ocean restoration.¹⁰⁷

Although System 001b was successful in collecting floating plastic from the GPGP, its model was not scalable, since a large number of vessels would be

Arjen Tjallega, "New North Sea Prototype Successfully Deployed," *The Ocean Cleanup* (blog), August 31, 2017, <https://theoceancleanup.com/updates/new-north-sea-prototype-successfully-deployed/>.

⁹⁹ The Ocean Cleanup, "System 001-First Ocean Cleanup System," *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/milestones/system001/>.

¹⁰⁰ The Ocean Cleanup.

¹⁰¹ The Ocean Cleanup.

¹⁰² The Ocean Cleanup.

¹⁰³ The Ocean Cleanup.

¹⁰⁴ The Ocean Cleanup.

¹⁰⁵ The Ocean Cleanup, "System 001/B Catching the First Plastic," *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/milestones/system-001b/>.

¹⁰⁶ The Ocean Cleanup.

¹⁰⁷ The Ocean Cleanup.

needed to effectively achieve The Ocean Cleanup's goal of removing 90% of the Ocean's floating plastic by 2040. This eventually led to System 002, named *Jenny*. This new system included active propulsion, to increase the system's velocity, while the ability to steer allows the system to be repositioned as needed in areas with a higher density of plastic.¹⁰⁸ The barrier deployed in this System can span up to 1.800 meters.¹⁰⁹ The system was launched in July 2021 and testing lasted from July until October. During these twelve weeks, tests examined aspects such as operational setup, system dynamics, environmental impact, and plastic harvesting capacity, and eventually, The Ocean Cleanup confirmed that it had reached proof of technology.¹¹⁰ And in July 2022 an important milestone was reached: System 002 had removed more than 100.000 kgs of debris from the GPGP, after performing consistently over a long period of time.¹¹¹ This significant achievement validated The Ocean Cleanup's technology and opened the way for the deployment of the much larger System 03.¹¹²

As trials in the GPGP validated the technology deployed, The Ocean Cleanup has begun its transition to System 03.¹¹³ According to the organization, this transition is considered necessary to realize its ambitions for oceanic restoration—increasing the size and capture efficiency of the cleanup system and decreasing the costs of debris collection will allow for scaling up efforts to reach the goal of removing 90% of floating plastic by 2040.¹¹⁴

The upgrade of the system consists of a new retention zone, to be added to the operations currently deployed (System 002/A).¹¹⁵ Meanwhile, new wings—the outer sections of the system—will be produced, incorporating improvements on the integrity of the system and its performance in the field, as well as increasing

¹⁰⁸ The Ocean Cleanup, "System 002," *The Ocean Cleanup* (blog), 2022, 002, <https://theoceancleanup.com/milestones/system-002/>.

¹⁰⁹ The Ocean Cleanup, "System 002."

¹¹⁰ The Ocean Cleanup.

¹¹¹ Boyan Slat, "First 100,000 KG Removed from the Great Pacific Garbage Patch," *The Ocean Cleanup* (blog), July 25, 2022, 000, <https://theoceancleanup.com/updates/first-100000-kg-removed-from-the-great-pacific-garbage-patch/>.

¹¹² Slat, "First 100,000 KG Removed from the Great Pacific Garbage Patch."

¹¹³ The Ocean Cleanup, "Transition to System 03 Begins," *The Ocean Cleanup* (blog), July 21, 2022, <https://theoceancleanup.com/updates/transition-to-system-03-begins/>.

¹¹⁴ The Ocean Cleanup.

¹¹⁵ The Ocean Cleanup.

the wings' depth (System 002/B).¹¹⁶ For System 002/C, the wings' length will be increased from eight-hundred to 1,600 meters.¹¹⁷ Eventually, System 03 will include wings with a span of 2,500 meters.¹¹⁸ To accommodate for the increased amount of plastics on board, a third ship is envisaged, to relieve the current two ships every two weeks to allow for the continuation of operation while shipping plastic to the shore.¹¹⁹ Increasing the system's catch capacity means that as few as ten cleanup systems should be able to clean the GPGP.¹²⁰ The transition to System 03 is expected to be completed in mid-2023.¹²¹

Even if all plastic emissions into the Ocean were halted immediately, the patches in the gyres would persist; and garbage patches such as the GPGP will endure indefinitely without intervention. That is why the organization's transition to System 03 and its clear blueprint for scale-up offer a glimpse of hope that cleaning the oceanic garbage patches and restoring the Ocean from plastic pollution is within reach—but one should note that no government so far has actively supported or financed the development and deployment of the new system, notwithstanding the very explicit and public promises made at the 2022 United Nations Ocean Conference on Ocean restoration.¹²²

D. How the Ocean Cleanup Carries Out Its Mission

In this part, two important guiding forces in the work of the organization are discussed, due to their core role in the planning and realization of The Ocean Cleanup's mission: research and rule of law. The essential character of these two ideas is highlighted in the BBNJ Agreement. Indeed, Article 8 (3) provisions that "[p]arties shall promote international cooperation in marine scientific research and in the development and transfer of marine technology" including "[e]nvironmental and biological information collected through

¹¹⁶ The Ocean Cleanup.

¹¹⁷ The Ocean Cleanup.

¹¹⁸ The Ocean Cleanup.

¹¹⁹ The Ocean Cleanup.

¹²⁰ The Ocean Cleanup.

¹²¹ The Ocean Cleanup.

¹²² United Nations, *Our ocean, our future, our responsibility*, A/CONF.230/2022/12 (June 17, 2022), available at undocs.org/en/A/CONF.230/2022/12, p. 5, para. 13(e).

research conducted in areas beyond national jurisdiction”¹²³ Additionally, Article 22 provisions that

when a Party with jurisdiction or control over a planned activity that is to be conducted in marine areas within national jurisdiction determines that the activity may cause substantial pollution of or significant and harmful changes to the marine environment in areas beyond national jurisdiction, that Party shall ensure that an environmental impact assessment of such activity is conducted in accordance with this Part or an environmental impact assessment is conducted under the Party’s national process.¹²⁴

How these approaches have shaped the work of The Ocean Cleanup is further examined below.

1. Research is a key pillar of the organization’s work

The Ocean Cleanup not only seeks to identify novel solutions to the problem of marine plastic pollution but also works towards understanding the problem itself.¹²⁵ This has raised research as one of the key pillars of the organization’s work.

Employing a variety of methods including field sampling and laboratory testing, The Ocean Cleanup aspires to thoroughly *comprehend plastic pollution* by identifying variables such as the size and composition of sub-tropical gyres, the correlation between plastic production and plastic pollution, and the buoyancy and degradation of plastic debris.¹²⁶ The organization has also *developed a toolbox of standardized methodologies*, such as remote sensing and measuring equipment (e.g., hyperspectral satellite cameras), to fully grasp the quantity of plastic floating in rivers and emitted into the Ocean.¹²⁷ The organization’s mission to restore a plastic-free Ocean is closely intertwined with *the study of marine ecosystems*. So far, research has aimed at understanding both the implications of plastic pollution to marine ecosystems and the interaction between species—such as

¹²³ See, Article 9 of the BBNJ Agreement.

¹²⁴ See, Article 28 of the BBNJ Agreement .

¹²⁵ The Ocean Cleanup, “Research,” *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/research/>.

¹²⁶ The Ocean Cleanup.

¹²⁷ The Ocean Cleanup; Robin de Vries, “Towards Spaceborne Detection of Ocean Plastic.”

neuston—and the cleanup system.¹²⁸ Among *the innovative technologies* and novel tools and methods it uses, one can identify automated camera monitoring and spaceborne plastic detection.¹²⁹

In its progress towards becoming a knowledge hub of Ocean plastic pollution, The Ocean Cleanup has partnered with twenty-six academic partners in five continents, including amongst others TU Delft, Utrecht University, and ETH Zurich.¹³⁰ Such engagement goes as far as building a network of supporters and encouraging citizens' science with The Ocean Cleanup Survey App, with which any individual can contribute to the organization's mission by disclosing information on debris they have encountered either in rivers or in the Ocean.¹³¹

Noteworthy is the fact that, as of July 2023, researchers of The Ocean Cleanup in collaboration with numerous scientific institutions have produced fifty-five scientific publications in different peer-reviewed journals.¹³² The Ocean Cleanup keeps its articles open-source and open-access, available not only to help other organizations in the field but also to provide sources of knowledge and evidence for those shaping Ocean policies at local, national, and international levels.¹³³

2. Rule of law as a foundation of the organization's actions

When The Ocean Cleanup started deploying pioneering technology in its efforts for Ocean conservation, it was not clear under which framework—domestic or international—such activity should fall.¹³⁴ As a result, the organization's activities were governed by a voluntary commitment to respecting all applicable environmental safeguards, marine activity, and plastic management

¹²⁸ Boyan Slat, "The Ocean Cleanup and the Neuston," *The Ocean Cleanup* (blog), February 6, 2019, <https://theoceancleanup.com/updates/the-ocean-cleanup-and-the-neuston/>.

¹²⁹ The Ocean Cleanup, "River Research Projects," *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/milestones/river-research-projects/>.

¹³⁰ The Ocean Cleanup, "Thanks to Our Partners We Can Clean the Oceans," *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/partners/>.

¹³¹ The Ocean Cleanup, "Become a Citizen Scientist and Help Tackle Plastic Pollution," *The Ocean Cleanup* (blog), December 16, 2020, <https://theoceancleanup.com/updates/become-a-citizen-scientist-and-help-tackle-plastic-pollution/>.

¹³² See Annex I: Annex 1: Academic Partners Of The Ocean Cleanup and Annex II: Scientific Publications. See also, The Ocean Cleanup, "Scientific Publications," *The Ocean Cleanup* (blog), 2022, <https://theoceancleanup.com/scientific-publications/>.

¹³³ The Ocean Cleanup, "Research."

¹³⁴ Rozemarijn Roland Holst. 'Current Legal Developments - The Netherlands: The 2018 Agreement between The Ocean Cleanup and the Netherlands' *The International Journal of Marine and Coastal Law* 34, 352.

regulations.¹³⁵ Thus, initiatives were taken to ensure the adequate regulation of the organization's activities, even when operating in ABNJ.¹³⁶

In light of the above, the organization and the Dutch Government signed an innovative agreement—the Agreement between the State of the Netherlands and The Ocean Cleanup.¹³⁷ As such, The Ocean Cleanup decided and chose to commit itself to the rule of law while operating in the high seas, in ABNJ, submitting itself to some of the highest environmental standards currently in force. The Agreement between the State of the Netherlands and The Ocean Cleanup—governed by Dutch law—is legally enforceable and remained in force for a period of five years after its signing; a two-year automatic extension was provisioned after that time, on the condition that an evaluation regarding the proceeding period has taken place, which has been conducted and submitted to the Dutch Government and Parliament, thereby initiating the extension.¹³⁸

The Agreement between the State of the Netherlands and The Ocean Cleanup includes provisions on *standards to ensure safety* when the system is in operation. In particular, The Ocean Cleanup must use materials suitable for the high seas in the construction of the systems and must equip the system with sufficient instruments to ensure its traceability and visibility. Strict detection and monitoring rules regarding the system's location are also to be enforced, while the organization agreed to conduct a Formal Safety Assessment before the systems are deployed on the high seas.¹³⁹ It also covers matters regarding insurance or security of the system to cover damage potentially caused to third-parties (e.g., marine pollution, maritime accident).¹⁴⁰ Additionally, the organization also agreed to cooperate with The Netherlands or other states that could potentially investigate facts of a maritime accident in which the system or parts of it were or may have been involved.¹⁴¹

¹³⁵ The Ocean Cleanup, “The Dutch State to Support the Ocean Cleanup’s High Seas Activities,” *The Ocean Cleanup* (blog), June 8, 2018, <https://theoceancleanup.com/updates/the-dutch-state-to-support-the-ocean-cleanup-high-seas-activities/>.

¹³⁶ The Ocean Cleanup.

¹³⁷ Agreement between the State of the Netherlands and The Ocean Cleanup concerning the deployment of systems designed to clean up plastic floating in the upper surface layer of the high seas, accessed on July 28, 2023, <https://zoek.officielebekendmakingen.nl/stcrt-2018-31907.html#d17e790>

¹³⁸ Submission to the Dutch Parliament, accessed on July 28, 2023, <https://www.rijksoverheid.nl/documenten/kamerstukken/2023/02/06/kamerbrief-convenant-the-ocean-cleanup>

¹³⁹ See, Articles 2.1 to 2.4 of the Agreement between the State of the Netherlands and The Ocean Cleanup.

¹⁴⁰ See, Article 2.5 of the of the Agreement between the State of the Netherlands and The Ocean Cleanup.

¹⁴¹ See, Article 2.6 of the of the Agreement between the State of the Netherlands and The Ocean Cleanup.

Indeed, safety should be an essential parameter when an organization designs new cleanup systems, them being designed to stay for extended periods in an area like the GPGP, characterized by stormy seas during wintertime.¹⁴² Therefore, weather conditions are closely monitored, so that the crew can plan accordingly and conduct operations in less critical conditions, while in case of severe storms, the system can be withdrawn on board.¹⁴³

The Ocean Cleanup also committed itself to adopting precautionary measures that may be reasonably expected of it *to prevent damage to the marine environment*, caused by the deployment of the system. Such measures include the removal of the system or of parts of it that have fallen into disuse during deployment on the high seas.¹⁴⁴ The organization will also ensure that harm arising from the system's deployment to species present in the area of operation is prevented. Under the Covenant, it commits to monitor the interaction between the cleanup system and species in the area, taking into consideration the impact of plastic and other materials that may be captured by the system on the species present in such area.¹⁴⁵ This includes operational and monitoring measures, as well as design features that allow for the minimization of interaction marine species with the cleanup system and seek to prevent any negative impacts to marine life. Data collected from the organization this far confirms that System 002 operates in

a responsible and precautionary way that avoids significant disruption to marine life while providing the long-term benefit of removing harmful plastic pollution from the ecosystem.¹⁴⁶

The organization has also committed to comply with domestic and international regulations while processing materials captured on the high seas and to include relevant provisions in agreements with third-parties regarding the processing of such materials, to the effect that these parties have to comply with applicable domestic and international regulations.¹⁴⁷ Indeed, any effort to address plastic pollution on the high seas should be undertaken with caution, minimizing its

¹⁴² The Ocean Cleanup, "Oceans. Cleaning up to Garbage Patches. How It Works."

¹⁴³ The Ocean Cleanup.

¹⁴⁴ See, Article 3.1 of the Agreement between the State of the Netherlands and The Ocean Cleanup.

¹⁴⁵ See, Article 3.2 of the Agreement between the State of the Netherlands and The Ocean Cleanup.

¹⁴⁶ Matthias Egger, "System 002 and Marine Life: Prevention and Mitigation", *The Ocean Cleanup*, accessed July 28, 2023. <https://theoceancleanup.com/updates/system-002-and-marine-life-prevention-and-mitigation/>.

¹⁴⁷ See, Article 3.3 of the Agreement between the State of the Netherlands and The Ocean Cleanup.

negative effects on the environment, since the GPGP—although the most studied of the five other oceanic gyres—is still an understudied marine ecosystem.¹⁴⁸

Thus, particularly for System 001, The Ocean Cleanup voluntarily conducted an EIA, in collaboration with CSA Ocean Science USA, drafted an environmental management plan, and has incorporated, although not formally required to, several recommendations formulated by the Espoo convention for the elaboration of the EIA, becoming one of the few entities that have done such an assessment for their operations in ABNJ.¹⁴⁹ Additionally, during the first expedition, staff of The Ocean Cleanup and independent researchers from the Seiche Group monitored the impact on protected species—marine mammals, birds, sea turtles—fish, and plankton communities. They have done that by conducting 1.045 hours of visual and acoustic monitoring, more than two-hundred visual inspections, forty-nine days of remotely operated monitoring, carried out via the AutoNaut, USV, while 5 M3i+ Ecosounder buoys connected to the system continuously monitored potential fish aggregation as far as two-hundred meters below the sea level, while it voluntarily reports any incidents with protected species to the Ministry of Water and Infrastructure.¹⁵⁰

Furthermore, under the Agreement between the State of the Netherlands and The Ocean Cleanup, the organization's operation may not hinder fishing activity on the high seas; in such a case the organization must consult with the party claiming such hindrance and seek a joint solution acceptable to both parties.¹⁵¹

Finally—and most importantly—the organization's activities, while international in nature, are thoroughly monitored by Dutch authorities. The Ocean Cleanup agrees to report any information on the results of its system's deployment, the system's monitoring, and unforeseen circumstances and to publish its findings if they do not pose a risk to the further implementation or improvement of its activities. Such regular reporting is to be shared with the

¹⁴⁸ The Ocean Cleanup, "Environment," <https://theoceancleanup.com/>, accessed September 20, 2022, <https://theoceancleanup.com/environment/>.

¹⁴⁹ Francesco Ferrari, "Mission One Environmental Monitoring Results Available," *The Ocean Cleanup* (blog), June 7, 2019, <https://theoceancleanup.com/updates/mission-one-environmental-monitoring-results-available/>.

¹⁵⁰ Ferrari.

¹⁵¹ See, Article 4.1 of the Agreement between the State of the Netherlands and The Ocean Cleanup.

Dutch Government and Parliament, making this operation one of the most politically scrutinized activities of Ocean conservancy.¹⁵² In such reporting, including to Bureau Waardenburg—an independent research and advice consultancy—The Ocean Cleanup is expected to take the necessary precautionary measures to reduce their environmental impact and to further technical and environmental optimization of their mission ensuring the operations' environmental impact is low, including its fuel consumption and emissions footprint. Meanwhile, although neither an obligation nor a focus for the organization, The Ocean Cleanup continues collecting data to better understand the marine environment in which it operates and its interaction with its cleanup systems.

Noteworthy is the fact that the organization is consistently showing commitment to going beyond its legal obligations. For example, in cooperation with CE Delft and South Pole, The Ocean Cleanup supported the Huóshui Grouped Small Hydropower and The Kariba REDD+ Project to offset System 001's carbon emissions and is currently working with such partners to identify solutions to offset emissions from System 001b,¹⁵³ while working with MAERSK to improve the fuel efficiency of the vessels deployed in the testing operations.¹⁵⁴

Furthermore, the organization's example and experience in undertaking environmental impact assessments on the high seas can provide a useful precedent for ocean conservancy, particularly in light of the provisioning of environmental impact assessments for relevant activities on the high seas by the BBNJ Agreement.¹⁵⁵ This is even more relevant as the Agreement is the first ever treaty to explicitly mention plastic pollution, albeit only in its preamble:

Recognizing the need to address, in a coherent and cooperative manner, biodiversity loss and degradation of ecosystems of the ocean, due to, in particular, climate change impacts on marine ecosystems, such as warming

¹⁵² See, Article 6.1 of the Agreement between the State of the Netherlands and The Ocean Cleanup.

¹⁵³ Lonneke Holierhoek, 'System 001 Offshore Campaigns Is Carbon Compensated Through Partnership With South Pole', *The Ocean Cleanup* (blog), 31 July 2020, <https://theoceancleanup.com/updates/system-001-offshore-campaign-is-carbon-compensated-through-partnership-with-south-pole/>.

¹⁵⁴ Maersk Supply Service, "Successful Biofuel Trial on Maersk Tender," <https://www.maersksupplyservice.com>, accessed September 20, 2022, <https://www.maersksupplyservice.com/2021/09/27/successful-biofuel-trial-on-maersk-tender/>.

¹⁵⁵ See, Articles 28–29 of the BBNJ Agreement.

and ocean deoxygenation, as well as ocean acidification, pollution, including plastic pollution, and unsustainable use.¹⁵⁶

E. Conclusion: The Indispensable Partner to Cleanup Plastic in the Ocean

This chapter examined the actions taken so far by The Ocean Cleanup in its efforts for oceanic conservation through combatting marine plastic pollution. *First*, by analyzing relevant data and reviewing projections, it underlined the close interlinkage between plastic production and plastic pollution. It was also noted that although a fraction of the totality of plastic waste makes it to the Ocean, its consequences to nature, human health, and the economy are grave. Taking the above into consideration, this chapter concluded that as plastic pollution is both pressing and persistent, taking relevant action is not only necessary but urgent. Thus, the work of The Ocean Cleanup is important as well as timely.

Subsequently, the approaches undertaken by the organization were discussed. The Ocean Cleanup strategy combining interception of plastic in rivers and cleaning up legacy plastic on the high seas will not only rapidly and cost-effectively limit plastic emissions to the sea, but also prevent plastic degradation into microplastics and tackle marine pollution, including from abandoned, lost, or discarded fishing gear. Regarding its approach to leakage from rivers, The Ocean Cleanup's Interceptor portfolio boasts a wide array of technological solutions that provides the necessary flexibility to accommodate the different conditions in place in rivers across the globe. Additionally, the organization has developed and validated cleanup systems to be used on the high seas and will be able through the progressive advancement of these systems to remove floating plastic from the subtropical gyres currently formed worldwide.

The organization's work is guided by constant research and development in the field of marine pollution and by firmly respecting the rule of law, even in ABNJ. This work may provide helpful data and useful precedents for future initiatives, also in light of the obligations being provisioned and negotiated, respectively, in legally

¹⁵⁶ General Assembly, *Draft 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*, available at: https://www.un.org/bbnj/sites/www.un.org.bbnj/files/draft_agreement_advanced_unedited_for_posting_v1.pdf, Articles 22, 23 of the BBNJ Draft Agreement

binding instruments on the conservation and sustainable use of marine biological diversity of ABNJ and on plastic pollution. Having confirmed that the cleanup systems employed by the organization do not harm the oceanic environment or its components and that the organization abides by strict standards on marine safety and environmental protection, as derived from the Agreement between the State of the Netherlands and The Ocean Cleanup, The Ocean Cleanup has emerged as not only a competent but also as the indispensable partner to cleanup plastic in the Ocean.

Annex 1: Academic Partners of The Ocean Cleanup

Can Tho University	Can Tho, Viet Nam
Carl von Ossietzky University of Oldenburg	Oldenburg, Germany
Chulalongkorn University	Bangkok, Thailand
Delft University of Technology	Delft, the Netherlands
ETH Zürich	Zürich, Switzerland
Flanders Marine Institute	Ostend, Belgium
Florida Atlantic University	Boca Raton, Florida
Hawai'i Pacific University	Honolulu, United States of America
Helmholtz Centre for Environmental Research	Leipzig, Germany
Ho Chi Minh City University of Technology	Ho Chi Minh City, Viet Nam
International Research Laboratory Takuvik	Quebec, Canada
Royal Netherlands Institute for Sea Research	Texel, the Netherlands
Smithsonian Environmental Research Center	Washington DC, United States of America
Technological Institute of Santo Domingo	Santo Domingo, Dominican Republic
The Energy and Resources Institute	New Delhi, India
The University of British Columbia	Vancouver, Canada
Universiti Teknologi Malaysia	Kuala Lumpur, Malaysia
University of Hawai'i at Mānoa	Honolulu, United States of America
University of KwaZulu-Natal	Durban, South Africa
University of Miami	Miami, United States of America
University of Reunion Island	Saint-Denis, France
University of the Aegean	Mytilene, Greece
University of Vienna	Vienna, Austria
University of Zurich	Zurich, Switzerland
Utrecht University	Utrecht, the Netherlands
Wageningen University & Research	Wageningen, the Netherlands

Annex 2: Scientific Publications

Scientific Publications

Annalisa Delre, Maaike Goudriaan, Victor Hernando Morales, Annika Vaksmaa, Rachel Tintswalo Ndhlovu, Marianne Baas, Edwin Keijzer, Tim de Groot, Emna Zeghal, Matthias Egger, Thomas Rockmann and Helge Niemann, 2023. Plastic Photodegradation Under Simulated Marine Conditions. *Marine Pollution Bulletin*, Volume 187, 114544.

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PART III |

MARITIME DELIMITATIONS AND SEA LEVEL RISE

CHAPTER 8 |

THE STATUS OF ROCKS AND ISLANDS AND ITS IMPLICATIONS: AN OVERVIEW OF ONE OF THE MOST DEBATED TOPICS IN THE LAW OF THE SEA FORTY YEARS AFTER THE ADOPTION OF THE CONVENTION

Sérgio Carvalho

A. Introduction

Over the last few decades, especially since the adoption of UNCLOS in 1982, islands and their status have emerged as one of the most controversial elements of international law. It is true that the regime of islands in the Southeast Asia region has gained greater importance in the face of a number of disputes associated with complex overlaps and claims of jurisdiction in which islands—or the ability of certain insular formations to be considered islands under international law—are one of the main elements of the legal equation. However, it is equally certain that this is all but a universal issue, which is why it has deserved the growing attention of international lawyers and political scientists. Furthermore, the ever more significant impacts of climate change on the ocean, particularly sea level rise, have made the importance of the island regime and the distinction between *islands* and the *rocks* that surround them even clearer. For physical changes to islands brought about by the sea level rise can affect their categorization under the law of the sea and thus the maritime rights and obligations associated with them.

Against this background, the present chapter intends to provide an overview of the most important elements of the legal regime of islands under UNCLOS, together with the main tenets of its legal analysis and interpretation during the forty years since its adoption, as well as reflect on how legal thinking on this question might evolve in the near future. We will begin with a look at the significance of the legal regime provided for in UNCLOS. We will then zoom into its most critical aspects and how it has been applied and interpreted since

the adoption of UNCLOS, including the critical award in *South China Sea Arbitration*.¹ Finally, we will draw conclusions and look to the future.

B. The Significance of the Regime of Islands

Even though disputes over the status of island formations—and, in particular, their role in the context of maritime boundary delimitation—predate UNCLOS, they gained in scope and legal significance with the adoption and entry into force of UNCLOS. Its final text includes a separate part on the *Regime of Islands* and establishes that islands—similarly to the *continental* coastal territory—can generate territorial seas, contiguous zones, EEZ, and continental shelves in accordance with the provisions applicable to other terrestrial formations. UNCLOS thus provides that even the smallest and most remote island formation—provided it meets the criteria set forth in Article 121 of UNCLOS—can be afforded the right to a vast maritime territory.

The geostrategic importance of this legal regime cannot be overstated. If an insular formation meets such criteria, it can exercise sovereignty or jurisdiction over the water column, seabed and subsoil thereof up to two-hundred nautical miles. If the conditions for the extension of the continental shelf are met, it can also do so over the seabed and the subsoil beyond two-hundred miles up to a limit that can reach three-hundred and fifty miles.² From an economic perspective, such a legal benefit represents, on the one hand, the right to access to and manage the biological resources of this vast territory and, on the other, the ability to explore and potentially exploit mineral resources or hydrocarbons that may exist. From a strategic viewpoint, the management of a significant maritime territory assumes, in general, a non-negligible importance—depending on the location of a given island, its area of jurisdiction may work either as a buffer-zone which affords protection to the continental space or as a form of springboard from where control can be projected over other maritime spaces. Furthermore, islands are often protagonists in the delimitation of maritime boundaries between States, being at

¹ *The Republic of Philippines v. The People's Republic of China*, PCA Case No. 2013-19, Annex VII to the 1982 United Nations Convention on the Law of the Sea, Award, dated July 12, 2016.

² Schofield suggests that a small island could generate a maritime area of up to 431.014 square kilometers, whereas a *rock*—that is, limited to only a territorial sea—would generate a much smaller area of 1.550 square kilometers [“Chapter II. The Trouble With Islands.”]

the basis of disputes both over sovereignty over the insular territory, as well as over its legal status and the maritime space generated by that territory.

This constellation of interests and difficulties associated with islands is directly related to two issues of international law which, although frequently interdependent, should not be confused. The first concerns sovereignty over a particular insular formation—often disputed by two or more States—based on different arguments of a legal, political, and historical nature. The second concerns different perspectives or interpretations on the status of a particular insular formation and, consequently, its capacity to generate jurisdiction over the adjacent maritime territory. Without forgetting the correlation that often exists between these two issues, this chapter addresses the second of these difficulties.

C. The Distinction between Rocks and Islands under UNCLOS

UNCLOS provides a regime for islands,³ which includes a key distinction between *islands* and *rocks*—the former are defined as naturally formed areas of land surrounded by water that are above the water at high tide; the latter are described as features “which cannot sustain human habitation or economic life of their own.”⁴ As stressed above, the nature of the feature affects the sovereign rights and jurisdiction of coastal States. If the feature is qualified as an island, the coastal State is entitled to an EEZ and continental shelf. If, by contrast, the feature is qualified as a rock, the coastal State is in principle entitled only to the territorial sea. This section will look into the main elements of this distinction as enshrined in UNCLOS before exploring the first—and so far the only—detailed substantive interpretation of these provisions by an international court or tribunal.

1. The core elements of Article 121 of UNCLOS

As noted above, at the heart of this legal equation is the wording of Article 121 of UNCLOS and the distinction between *islands* and *rocks*.

³ See, Article 121 of UNCLOS.

⁴ It should be pointed out that it is not entirely clear whether Article 121(3) of UNCLOS contains the legal definition of rocks, or rather refers to the legal consequences of a *certain category* of rocks that cannot sustain human habitation or economic life of their own, without defining what a rock actually is. Among others, Guillaume suggests that this might be the case [Gilbert Guillaume, “Rocks in the Law of the Sea: Some Comments on the South China Sea Arbitration Award,” *EJIL: Talk!* (blog), February 25, 2021, <https://www.ejiltalk.org/ricks-in-the-law-of-the-sea-some-comments-on-the-south-china-sea-arbitration-award/>.]

It is perhaps intentionally ambiguous in its wording and the result of the special circumstances in which the negotiations took place. Based on Article 10(1) of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone—which turn dates back to the 1930 Hague Codification Conference⁵—the exact wording of Article 121 of UNCLOS, particularly its paragraph 3, was hotly debated by several States participating in the Third United Nations Conference on the Law of the Sea. Many of them submitted proposals to develop a legal regime for islands that suited their specific interests and reflect their geographic circumstances.⁶ While some of these States had the clear objective of minimizing the potential territorial impact of small island formations in generating vast jurisdictional spaces—including because of its impact in boundary delimitation—others focused on maximizing the ability of these island formations to generate maritime jurisdiction in line with their specific geographic circumstances and their economic and geopolitical interests. The natural result of this combination of conflicting interests was a compromise formulation that sought to strike a delicate balance between divergent perspectives.⁷

The resulting wording of Article 121 of UNCLOS is thus something of a conundrum with several elements that merit separate examination. *First*, in order to be considered an island, an insular formation must be a land formation, that is, it must (i) be connected to the seabed, (ii) have the nature of dry land; and (iii) be permanent. It can be argued that this formation can lose the legal status of an island as soon as it is submerged by water due to erosion, a natural disaster, or human action.⁸

⁵ The definition of an island then adopted contained three elements that have persisted to this day: (i) naturally formed area of land; (ii) surrounded by water; and (iii) permanently above the high tide mark [“II. Territorial Waters,” *American Journal of International Law* 24, No. S1 (January 1930): 34.]

⁶ See, Yann-Huei Song, “The Application of Article 121 of the Law of the Sea Convention to the Selected Geographical Features Situated in the Pacific Ocean,” *Chinese Journal of International Law* 9, No. 4 (December 1, 2010): 663–98.

⁷ At least, this was the view of several States at the time of the Third United Nations Conference on the Law of the Sea, such as Denmark and Colombia. See, United Nations, “Third United Nations Conference on the Law of the Sea.” In particular, Document A/CONF.62/SR.171 and A/CONF.62/SR.172 in *Official Records of the Third United Nations Conference on the Law of the Sea, Volume XVI (Summary Records, Plenary, First and Second Committees, as well as Documents of the Conference, Eleventh Session*, pp. 106–113 and 114–120 respectively.

⁸ See, Choon-Ho Park, “The Changeable Legal Status of Islands and ‘Non-Islands’ in the Law of the Sea: Some Instances in the Asia-Pacific Region,” in *Bringing New Law to Ocean Waters*, ed. David D. Caron and Harry N. Scheiber, vol. 47 (Brill | Nijhoff, 2004), 483–91, https://brill.com/view/book/edcoll/9789047406297/B9789047406297_s023.xml.

Second, UNCLOS requires that the land formation be *natural*, thereby excluding artificial land formations.⁹ Although, again, the distinction seems clear at first glance, there are multiple situations that can raise doubts, such as when work is being done to protect against erosion and sea-level rise, or *to consolidate* an insular formation. In such situations, it can become difficult to discern the extent to which human intervention is changing the nature of the land formation and the extent to which such activities may cause an island to lose its character as “naturally formed” within the meaning of Article 121(1) of UNCLOS.¹⁰

Third, the land formation must be surrounded by water and be above the water at high tide. Interestingly, both Article 10 of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone and Article 121 of UNCLOS avoid the use of the term *permanently*—in the sense of *permanently* above water—which the 1930 Hague Codification Conference contained. Nevertheless, it seems clear that the idea of *permanence* is still captured by Article 121 of UNCLOS, in the sense that a land formation loses its status as an island if it is submerged at some point, namely at high tide.¹¹ Although the size of the insular formation might be relevant from the perspective of a comprehensive reading of Article 121 of UNCLOS, it should be noted that its paragraph 1 says nothing about the dimensions of the land formation to give it the general characterization as an island. This suggests that—at least in principle—any naturally formed area of land that is surrounded by water and remains above it at high tide can be considered as island for the purpose of UNCLOS, regardless of its size.¹²

⁹ According to the Article 60(8) of UNCLOS, “artificial islands, installations and structures [in the EEZ] do not possess the status of islands” and “have no territorial sea of their own.” With the same rule applying *mutatis mutandis* to the continental shelf (see, Article 80 of UNCLOS). See, for the few exceptions to these rules, Alex G. Oude Elferink, “Artificial Islands, Installations and Structures,” in *Max Planck Encyclopedia of Public International Law*, ed. Rüdiger Wolfrum (New York, N.Y.: Oxford university press, 2008).

¹⁰ See, Jenny Grote Stoutenburg, *Disappearing Island States in International Law* (Brill | Nijhoff, 2015), <https://brill.com/view/title/27252>; Niliüfer Oral, “International Law as an Adaptation Measure to Sea-Level Rise and Its Impacts on Islands and Offshore Features,” *The International Journal of Marine and Coastal Law* 34, No. 3 (August 30, 2019): 415–39. This specific question is one of a set of relevant issues pertaining to the impact of sea-level rise on the law of sea currently being studied by the International Law Commission in the context of a Study Group on *sea-level rise in relation to international law*.

¹¹ In such cases, we are in a situation defined under international law as *low-tide elevations* [see, Article 13(1) of UNCLOS]. Low-tide elevations do not generate maritime zones and, as the ICJ has held, cannot be appropriated by any State (see, *Maritime Delimitation and Territorial Questions between Qatar and Bahrain, Merits, Judgment*, I.C.J. Reports 2001, p. 102, para. 207).

¹² The ICJ in *Territorial and Maritime Dispute (Nicaragua v. Colombia)* quoted the judgment in *Maritime Delimitation and Territorial Questions between Qatar and Bahrain* to recall what it described as being the *long-established principle* that “[...] islands, regardless of their size, enjoy the same status, and therefore

While the first two paragraphs of Article 121 of UNCLOS—while allowing for more than one reading—seem somewhat straightforward, the same is not true of paragraph 3 (“rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf.”) This formulation raises several doubts and has been the source of many debates that have attempted to fill the interpretative gaps created by the wording of Article 121 of UNCLOS and, until recently, by the absence of jurisprudence that would shed clear and comprehensive light on the scope of this standard.¹³

2. The concept of rocks

The interpretation of Article 121(3) of UNCLOS has proved controversial and difficult from the outset as a result of the ambiguity of the language agreed to at the Third United Nations Conference on the Law of the Sea. Indeed, the former reflects the fact that the Third United Nations Conference on the Law of the Sea was unable to agree on which island features should be disqualified from the granting of extended maritime zones based on the size and other natural characteristics.¹⁴

In the absence of a clear definition of *rock* or criteria for its qualification as such, different interpretations of Article 121(3) of UNCLOS have been offered. One states that this provision, by definition, applies to remote features unless it can be convincingly proven that they meet the requirements for classification as

generate the same maritime rights, as other land territory.” See, *Territorial and Maritime Dispute (Nicaragua v. Colombia)*, Judgment, I.C.J. Reports 2012, p. 674, para. 139.

¹³ See, among others, for a quick snapshot of the arguments exchanged in this regard over the forty years since the adoption of the Convention, Jon M. Van Dyke and Robert A. Brooks, “Uninhabited Islands: Their Impact on the Ownership of the Oceans’ Resources,” *Ocean Development & International Law* 12, No. 3–4 (January 1983): 265–300; Robert Kolb, “L’interprétation de l’article 121, paragraphe 3, de la convention de Montego Bay sur le droit de la mer : les « rochers qui ne se prêtent pas à l’habitation humaine ou à une vie économique propre... »,” *Annuaire français de droit international* 40, No. 1 (1994): 876–909; Jonathan I. Charney, “Rocks That Cannot Sustain Human Habitation,” *American Journal of International Law* 93, No. 4 (October 1999): 863–78; Jon M. Van Dyke and Yann-Huei Song, eds., “Chapter VIII. Okinotorishima: A Rock Or An Island? Recent Maritime Boundary Controversy Between Japan And Taiwan/China,” in *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea* (Brill | Nijhoff, 2009), 145–75, https://brill.com/view/book/edcoll/9789047426899/Bej.9789004173439.i-308_009.xml; Clive Schofield, “Islands or Rocks, Is That the Real Question? The Treatment of Islands in the Delimitation of Maritime Boundaries,” in *The Law of the Sea Convention*, ed. Myron H. Nordquist et al. (Brill | Nijhoff, 2012), 305–68, <https://brill.com/view/book/edcoll/9789004202320/B9789004202320-s020.xml>.

¹⁴ Anderson has commented that “the lengthy discussions were marked by a lack of consensus” and “the records are not a reliable guide to the provision’s interpretation” [“Panel III: I Slands and Rocks,” in *The Law of the Sea Convention*, ed. Myron H. Nordquist et al. (Brill | Nijhoff, 2012), 309, <https://brill.com/view/book/edcoll/9789004202320/B9789004202320-s020.xml>].

islands.¹⁵ Another interpretation proposes that only the smallest features are incapable of either human habitation or an economic life of their own. Therefore, they cannot generate full maritime zones.¹⁶ Another reading argues that there are actually the three following categories of island features: (i) islands proper; (ii) rocks that can sustain human habitation and an economic life of their own—therefore, generating full maritime zones; and (iii) rocks that cannot sustain human habitation and an economic life of their own—therefore, only generating territorial sea.¹⁷

To some extent, a systematic reading of Article 121 of UNCLOS seems to lead to the conclusion that rocks are a subtype of islands that fit into the narrower legal category of *rocks*—and not into the broader category of *islands*—because they are incapable of sustaining human habitation or economic life of their own. Putting it differently: The term *rocks* is meant to be used primarily for situations in which an island feature is incapable of sustaining *human habitation* or *economic life of their own*, not to create a separate category that exists only because of specific geological or geomorphologic characteristics.¹⁸

As a consequence of the distinction between *islands* and *rocks*—primarily based on whether a particular insular formation allows for human habitation or economic life of their own—it is not surprising that this particular expression has been at the heart of many legal exchanges relating to Article 121(3) of UNCLOS over the past forty years. To begin with, the relationship between the two criteria must be clarified. In light of the use of the coordinating conjunction *or*, rather than *and*, the wording suggests that a naturally formed area of land that fills either one of these two requirements has an EEZ and continental shelf.¹⁹ However, some have pointed to alternative views that argue that the conjunctive character

¹⁵ The argument is that the EEZ regime was intended to benefit local communities, not to confer a windfall on the owners of remote, uninhabited features. See, adopting this view, among others, Marius Gjetnes, “The Spratlys: Are They Rocks or Islands?,” *Ocean Development & International Law* 32, No. 2 (April 2001): 191–204.

¹⁶ See, among others, Schofield, “Panel III.”

¹⁷ See, Guillaume, “Rocks in the Law of the Sea: Some Comments on the South China Sea Arbitration Award.” While appealing, this interpretation fails to offer any distinction between a rock and an island, which seems to be one of the purposes of Article 121(3) of UNCLOS.

¹⁸ See, Kwiatkowska and Soons, “Entitlement to Maritime Areas of Rocks Which Cannot Sustain Human Habitation or Economic Life of Their Own.” According to them, the term *rock* also covers sandbanks and other insular features different from rocks in the ordinary meaning of that term.

¹⁹ See, in support of this view, among others, Van Dyke and Song, “Chapter VIII. Okinotorishima.”

of the two tests—as opposed to their alternative application—is the only approach that prevents Article 121(3) of UNCLOS from being interpreted as broadly as possible, which would easily render the provision useless.²⁰

In the first of these two elements—ability to sustain human habitation—we again come across two very different views. While some authors suggest that this requirement relates to a stable community of permanent residents living on the feature and using the surrounding maritime area for their livelihoods,²¹ others consider that the provision rather points to an abstract capacity, present or future.²² Significant in this case, however, is the fact that in *Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway)*—for many years the only case in which an international tribunal had to consider the concept of human habitation within the meaning of this provision—the ICJ implicitly recognized that the island of *Jan Mayen* had the right to generate an EEZ and continental shelf, although it did not have a permanent settled population and was inhabited solely by the twenty-five persons who operated weather and radio stations.²³

A similar interpretative difficulty exists with respect to the criterion of *economic life of their own*. In this case, the difficulty is to determine whether the economic life on the island determines access to the maritime zones or whether the economic potential of the surrounding waters of the feature is sufficient to meet this requirement. In addition, one must clarify whether the ability to sustain an economic life of its own should be assessed on the basis of economic *potential* or, on the contrary, on the basis of the existence of one

²⁰ See, Kwiatkowska and Soons, “Entitlement to Maritime Areas of Rocks Which Cannot Sustain Human Habitation or Economic Life of Their Own.”

²¹ See, Jon M. Van Dyke, Joseph Morgan, and Jonathan Gurish, “The Exclusive Economic Zone of the Northwestern Hawaiian Islands: When Do Uninhabited Islands Generate an EEZ,” *San Diego Law Review* 25, No. 3 (May 1988): 425.

²² See, Charney, “Rocks That Cannot Sustain Human Habitation.” After a careful analysis of the *travaux préparatoires* of Article 121(3) of UNCLOS, Kolb reaches the conclusion that, as the negotiations at the Third United Nations Conference on the Law of the Sea progressed, ideas shifted towards the idea of *potential* capacity to support human habitation being sufficient [“L’interprétation de l’article 121, paragraphe 3, de la convention de Montego Bay sur le droit de la mer.”]

²³ See, *Maritime Delimitation in the Area between Greenland and Jan Mayen, Judgment*, I.C.J. Reports 1993. See also, for a previous and more expansive comment on the island credentials of *Jan Mayen*, United Nations, “Conciliation Commission on the Continental Shelf Area between Iceland and Jan Mayen: Report and Recommendations to the Governments of Iceland and Norway, Decision of June 1981,” Reports of International Arbitral Awards (United Nations, June 1981), https://legal.un.org/riaa/cases/vol_XXVIII/1-34.pdf.

or more economic activities already properly established. For many authors,²⁴ the criterion of *economic life of their own* is one that must necessarily be (re)assessed over time because it depends on the socioeconomic circumstances at the moment of the claim, particularly given that *economic life*—and *human habitation* for that matter—are directly linked to human activities and developments that “may vary over time through changes in the value of resources and human capacity to inhabit or economically develop the area.”²⁵

As we have shown, there have been several academic attempts to explain these provisions over the years. However, a significant development occurred in 2016 when an international tribunal, in the *South China Sea Arbitration*, finally interpreted Article 121(3) of UNCLOS in a thorough and comprehensive manner. While it can be argued that the outcome of this analysis raises as many questions as it attempts to answer, it is nonetheless a crucial development that merits in-depth study.

3. The South China Sea Arbitration Award

As noted above, despite the importance of this issue in assessing the scope and legitimacy of maritime entitlements, “there has been very little consideration, or interpretation, of Article 121 by international courts and tribunals” over the years.²⁶ The award of the arbitral tribunal in the South China Sea Arbitration was therefore significant. It contained the first detailed judicial analysis of Article 121 of UNCLOS. And while it leaves much room for further analysis and raises some important questions about the approach taken, it provides a number of important indications of how future courts and tribunals may address these issues.

Of particular relevance to our considerations thus far, the arbitral tribunal—constituted under Annex VII to UNCLOS—devoted a great deal of attention to Article 121(3) of UNCLOS and the meaning of *rocks*. A first important conclusion of the arbitral tribunal was that the geological or geomorphological characteristics of the island feature in question were not relevant to its classification as a rock

²⁴ See, for example, Charney, “Rocks That Cannot Sustain Human Habitation”; Sondra Faccio, “‘Human Habitation or Economic Life of Their Own’: The Definition of Features Between History, Technology and the Law,” *Liverpool Law Review* 42, No. 1 (April 2021): 15–33.

²⁵ Charney, “Rocks That Cannot Sustain Human Habitation,” 867.

²⁶ David Freestone and Duygu Cicek, “Legal Dimensions of Sea Level Rise : Pacific Perspectives.” (The World Bank, 2021), 33, <https://openknowledge.worldbank.org/handle/10986/35881>.

or island, at least in two ways. *First*, as the arbitral tribunal phrased it, “[...] size cannot be dispositive of a feature’s status as a fully entitled island or rock and is not, on its own, a relevant factor,”²⁷ suggesting that even the smallest feature may fall within the scope of Article 121(2) of UNCLOS. *Second*, the term *rock* should not be read exclusively according to its common geological meaning, suggesting that any island formation above high tide may be considered as such within the meaning of Article 121(3) of UNCLOS, regardless of its geological characteristics.²⁸

Since the arbitral tribunal tended to disregard the physical characteristics of a feature in determining whether it is a *rock*, it shifted its focus towards the two substantive requirements in Article 121(3) of UNCLOS. In doing so, it first ruled that one of the two requirements in that provision—human habitation *or* economic life of its own—must be met for an insular formation to qualify as an island with the capacity to generate full maritime zones.²⁹ Equally important, the arbitral tribunal stated that the assessment of the status of a feature must be based on its natural capacity, that is “[...] without external additions or modifications intended to increase its capacity to sustain human habitation or an economic life of its own.”³⁰

Subsequently, the arbitral tribunal considered what it means for a rock to be able to sustain human habitation. It first noted that the word *maintain* in its ordinary meaning and in the context of the concept of human habitation means to provide what is necessary to keep humans alive and healthy for a continuous period of time, according to a proper standard.³¹ The arbitral tribunal elaborated on this reasoning, adding that in addition to all of the elements necessary to keep people alive on the feature the concept of *human habitation* also requires conditions that are sufficiently conducive to human life and livelihood for people to inhabit on the feature—not merely survive. As such, it concluded that “[a]t a minimum, sustained human habitation would require that a feature be

²⁷ *The Republic of Philippines v. The People’s Republic of China*, para. 538.

²⁸ *The Republic of Philippines v. The People’s Republic of China*, para. 480.

²⁹ *The Republic of Philippines v. The People’s Republic of China*, para. 496. The arbitral tribunal nonetheless notes that the two concepts are linked in practical terms, regardless of the grammatical construction of Article 121(3).

³⁰ *The Republic of Philippines v. The People’s Republic of China*, para. 541.

³¹ *The Republic of Philippines v. The People’s Republic of China*, para. 487.

able to support, maintain, and provide food, drink, and shelter to some humans to enable them to reside there permanently or habitually over an extended period of time.”³² According to the arbitral tribunal, “[...] the critical factor is the non-transient character of the inhabitation, such that the inhabitants can fairly be said to constitute the natural population of the feature, for whose benefit the resources of the exclusive economic zone were seen to merit protection.”³³ In its view, the term *human habitation* should be understood to mean the inhabitation of the feature by a stable community of people for whom the feature constitutes a home and on which they can remain.

With regard to the concept of *economic life of their own*, the arbitral tribunal considered that it presupposes the existence of resources capable of providing a minimum adequate standard of living for a human population, as well as a certain level of human activity for the use, development and distribution of those resources.³⁴ Accordingly, the arbitral tribunal further noted that the role of the local population is pivotal. There is no independent economic life if the feature relies “[...] predominantly on the infusion of outside resources or serving purely as an object for extractive activities, without the involvement of a local population.”³⁵ It thus concluded that the *economic life* in question is ordinarily the life and livelihoods of the human population inhabiting and settling on a maritime feature or group of features, and that the *of its own* element indicates that this economic life must be oriented around the feature itself and not just the waters or seabed of the surrounding territorial sea.³⁶ Accordingly, it concluded that “[e]conomic activity that is entirely dependent on external resources or devoted to using a feature as an object for extractive activities without the involvement of a local population would also fall inherently short with respect to this necessary link to the feature itself.”³⁷

³² *The Republic of Philippines v. The People's Republic of China*, para. 490. While stating that the concept of *habitation* generally implies the habitation of the feature by a group or community of persons, the arbitral tribunal noted that “no precise number of persons is specified in the Article” [para. 491].

³³ *The Republic of Philippines v. The People's Republic of China*, para. 542.

³⁴ *The Republic of Philippines v. The People's Republic of China*, para. 499.

³⁵ *The Republic of Philippines v. The People's Republic of China*, para. 500.

³⁶ *The Republic of Philippines v. The People's Republic of China*, para. 503. According to the arbitral tribunal, activities in the territorial sea could form part of the economic life of a feature provided that it “[has] some tangible link to the high-tide feature itself,” [para. 556] through local population or otherwise. By contrast, any economic activity derived from a possible EEZ or continental shelf shall be excluded.

³⁷ *The Republic of Philippines v. The People's Republic of China*, para. 543.

However secure in its analysis of the main elements of Article 121(3) of UNCLOS, the arbitral tribunal rejected an absolutist reading of this provision and recognized that the above conclusion must be tempered or at least weighted against other factors.

First, while stressing that a feature normally has an economic life of its own only if it is also inhabited by a stable human community, it recognized that an exception to this view relates to communities that are self-sustaining through a network of related maritime features, concluding that “[...] a population whose livelihood and economic life extends across a constellation of maritime features is not disabled from recognizing that such features possess an economic life of their own merely because not all of the features are directly inhabited.”³⁸

Second, while confirming that the requirement in Article 121(3) of UNCLOS that the feature itself sustain human habitation or economic life clearly precludes reliance on external supply, the arbitral tribunal recognized that “[...] remote island populations often make use of a number of islands, sometimes spread over significant distances, for sustenance and livelihoods.”³⁹ In addition, it stated that, insofar as such islands are collectively part of a network that sustains human habitation in accordance with the traditional way of life of the peoples in question, the role of multiple islands in this way should not be equated with external supply or local use of nearby resources as part of the livelihood of the community with the arrival of distant economic interests aimed at extracting natural resources.

Third, Article 121(3) of UNCLOS deals with the ability of a maritime feature to sustain human habitation or an economic life of its own—not whether the feature is or was inhabited or harbored an economic life.⁴⁰ Furthermore, the arbitral tribunal pointed out that evidence on the objective and physical conditions of a particular feature may prove insufficient when it comes to assessing that capacity in more complex situations. In such cases, the most reliable evidence is usually the historical use to which it has been subjected. It further added that evidence of human habitation that predates the creation of EEZ may be more meaningful than contemporary evidence if the latter is clouded by an apparent attempt to assert a maritime claim.⁴¹

³⁸ *The Republic of Philippines v. The People's Republic of China*, para. 544.

³⁹ *The Republic of Philippines v. The People's Republic of China*, para. 547.

⁴⁰ *The Republic of Philippines v. The People's Republic of China*, para. 545.

⁴¹ *The Republic of Philippines v. The People's Republic of China*, paras. 549–550.

Given that the award represents the first detailed review of the interpretation and application of Article 121 of UNCLOS—in particular its paragraph 3—it was perhaps to be expected that it would produce as many welcome clarifications of that provision as it would raise relevant questions about the way in which the arbitral tribunal interpreted it. These questions are the result of not only substantive inconsistencies in the interpretations of the arbitral tribunal, but also what has been dubbed as an “abyss between the tribunal’s approach and the practice of many States.”⁴²

4. *Unresolved questions and future implications of the Award*

While remarkably comprehensive, there are reasons to believe that the award in *South China Sea Arbitration* is unlikely to emerge as the definite and authoritative interpretation of Article 121(3) of UNCLOS, as it could settle once and for all the many questions that have emerged over the years regarding the meaning and impact of this provision.

First, it has been argued that the interpretations of the arbitral tribunal and the reasoning it used to support its conclusions suffer from relevant substantive vulnerabilities. Although a detailed analysis of each one of those vulnerabilities is beyond the scope of this chapter, it is worth briefly pointing out some of them. On the one hand, it has been claimed that the arbitral tribunal committed significant errors by going beyond the plain meaning of Article 121(3) of UNCLOS and adopting creative interpretations, many of which not supported by either UNCLOS or its *travaux préparatoires*.⁴³ On the other, it has been stressed that the arbitral tribunal adopted a rather restrictive and conservative interpretation of the interaction between the concepts of *human habitation* and *economic life* in Article 121(3) of UNCLOS. While the award first concludes that the use of the word *or* between the two concepts implies that they do not need to be met simultaneously, the later interpretation suggests that the criterion of *economic*

⁴² Alex G. Oude Elferink, “The South China Sea Arbitration’s Interpretation of Article 121(3) of the LOSC: A Disquieting First,” *The NCLOS Blog* (blog), July 9, 2016, <https://site.uit.no/nclos/2016/09/07/the-south-china-sea-arbitrations-interpretation-of-article-1213-of-the-losc-a-disquieting-first/>.

⁴³ A notable example concerns the definition of *rocks*. For instance, Guillaume argues that the ruling of the arbitral tribunal that *rocks* should not be understood in its geological sense is at odds with the ordinary meaning of the term and the *travaux préparatoires* of Article 121 of UNCLOS, both of which said to point to “[...] a literal interpretation of this text which only concerns rocks in the usual meaning of the term” [Guillaume, “Rocks in the Law of the Sea: Some Comments on the South China Sea Arbitration Award”].

life of their own is met only if the same is true for that of *human habitation*. In this case the earlier assumption that the two requirements have equal footing is contradicted. Furthermore, it has been argued that the arbitral tribunal also ignores—or seems to ignore—common features of many modern and fully functioning island territories, some of which are not only highly dependent on external supplies for some—or even most—goods, but whose economic activity has also traditionally been based on the exploitation of resources.⁴⁴

Second, another group of authors has flagged a different set of weaknesses, arguing that the arbitral tribunal chose to all but ignore examples of State practice in applying Article 121(3) of UNCLOS.⁴⁵ While acknowledging the importance of State practice in interpreting UNCLOS, the award pointed out that there is a high threshold above which State practice must meet the standard of an interpretive agreement. But even if it is true that there are various and significant disputes over the meaning of Article 121(3) of UNCLOS, “it could be argued that a detailed examination of State practice would give a more nuanced indication as to how the international community has applied art 121(3).”⁴⁶

Third, the award does not seem to be entirely in sync with the approach of other international tribunals which, albeit not focusing on Article 121(3) of UNCLOS in such a detailed and comprehensive manner, have nonetheless indirectly addressed the question of what should be understood as an island under UNCLOS. To give just a few examples: (i) the aforementioned *Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway)*, in which the ICJ seemed to have implicitly recognized that the island of Jan Mayen, although lacking a permanent settled population, nevertheless had the right to generate an EEZ and continental shelf; and (ii) the *Sovereignty and Maritime Delimitation in the Red Sea (Eritrea v. Yemen)*, whose award addressed the meaning of the terms *islands*, *islets*, and *rocks* and implied the existence of a clear distinction

⁴⁴ See, Faccio, “Human Habitation or Economic Life of Their Own.”

⁴⁵ See, for example, Joanna Mossop, “The South China Sea Arbitration and New Zealand’s Maritime Claims,” *SSRN Electronic Journal*, 2017, <https://www.ssrn.com/abstract=3123313>; Guillaume, “Rocks in the Law of the Sea: Some Comments on the South China Sea Arbitration Award.”

⁴⁶ Joanna Mossop, “The South China Sea Arbitration and New Zealand’s Maritime Claims”.

between them. Particularly, the arbitral tribunal consistently referred to Jabal al-Tayr as an *island*—a feature it described as “barren and inhospitable.”⁴⁷

Although none of these implied shortcomings and inconsistencies should be indicative that the award in *South China Sea Arbitration* lacks critical significance in the overall debate over the interpretation of Article 121 of UNCLOS—in particular its paragraph 3—they are to the very least an indication that some of the pieces that make up the complex puzzle of that provision have not yet been resolved. And although there is nothing to suggest that the pending divergences will be settled anytime soon, it seems that the uniform interpretation and application of UNCLOS recommends closing of the gap between different interpretations and between the latter and State practice. This is all the more important as present and future challenges loom large that test the strength of UNCLOS and the stability of its legal regime.

D. Conclusion

As highlighted in this chapter, the status of *rocks* and *islands* under UNCLOS—particularly its Article 121(3)—have been one of the most controversial and hotly debated legal questions in the law of the sea over the past forty years, and for good reason. Although the award in *South China Sea Arbitration* constitutes a major development in the analysis and interpretation of this provision, it is clear that the controversy is far from settled, in part because there continue to be differing views on the interpretation of many key elements.

Although it is understandable that this question has grown in importance over the past four decades—since the adoption of UNCLOS—there are reasons to believe that this importance will increase in the future.

First, an increasingly complex geopolitical environment, such as the one we are currently witnessing, is prone to facilitating the emergence of a greater number of maritime disputes—and, consequently, the attribution of outweighed importance to certain island features in the context of those disputes.

Second, the legal framework established in UNCLOS is itself evolving and becoming more complex. The most important of innovation is the future

⁴⁷ *The Government of the State of Eritrea and The Government of the Republic of Yemen*, PCA Case pursuant to an agreement to arbitrate dated October 3, 1996, Award of the Arbitral Tribunal in the Second Stage of the Proceedings (Maritime Delimitation), dated December 17, 1999, para. 147.

adoption of BBNJ Agreement. Among other implications, the latter instrument could reinforce the importance of clarity on the nature of the maritime space surrounding certain island features.

Third, perhaps most importantly, the way the ocean physically interacts with land territories is also changing dramatically, especially due the ever-increasing impacts of climate change on the ocean. In particular, sea-level rise will make the importance of the regime for islands even more apparent in understanding the extent to which physical changes on islands brought about by sea-level rise could impact their categorization under the law of sea and therefore the maritime entitlements associated with those features.

As a result, the intricate aspects that have given rise to the importance of the legal status of *rocks* and *islands*—combined with the powerful amplifiers we have just highlighted—seems to suggest that this question will not only continue to occupy a noticeable place in the controversies surrounding the interpretation and application of UNCLOS, but will likely be at the forefront of debates about how the Convention will adapt to the legal, political, and environmental challenges of the coming decades.

CHAPTER 9 |

THE EXTENSION OF THE CONTINENTAL SHELF AND ITS IMPLICATION FOR THE GLOBAL SEABED JURISDICTION

Aldino Santos de Campos*

A. Introduction

The Convention sets out a significantly different approach to how humankind can more effectively govern the global ocean. It covers all important affairs related to marine activities, especially those that were on the international agenda during the Third United Nations Conference on the Law of the Sea. One challenge that was highly debated concerned seafloor resources. Regarding this issue, the text of the Convention devotes two major sections to how these valuable global resources can be owned, shared, and managed (Part VI and Part XI, the Continental Shelf, and the Area, respectively). The Convention set forth an innovative concept of resource sovereignty, codifying in two juridically distinct blocks the ownership of the seafloor and its resources. Today, considering ongoing global challenges such as global warming and its future ramifications, the world is looking at the oceans from a distinct angle. Environmental concerns are now rising to the top of the international agenda as the time to prevent an eventual collapse of the Earth's systems is decreasing. The imposed economic growth model of the last few decades has driven us to a point of no-return in terms of oceanic sustainability. Initiatives such as the Alliance of Countries for a Deep-Sea Mining Moratorium, mainly sponsored by small and developing island countries, are now changing the way we ought to look at the oceans and their seabed resources. Nonetheless, ongoing efforts to define the limits of ownership of seabed resources is another concern that is still very much alive in contemporary international politics.

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At the time of writing, ninety-two submissions have been submitted to the CLCS seeking international recognition of the limits of the extended continental shelf, and more will soon follow. This might be the last opportunity given to coastal States to claim exclusive sovereignty rights over their natural resources in a peaceful manner, and these States certainly recognize that importance.

To better grasp this process, it is necessary to go back several decades and understand the roots of the ownership of seabed resources and how the extension of the continental shelf beyond two hundred nautical miles, under Article 76 of UNCLOS, is of paramount importance for coastal States.

B. The Background of the Continental Shelf

The term *continental shelf* is relatively recent. The first reference to this concept dates to 1887, when it was coined by Hugh Robert Mill in his work titled “The Realm of Nature – An Outline of Physiography.”¹ Later, Hugh Mill published a global reference book on the physiography of the world called “The International Geography.”² This remarkable work incorporates the recent concepts and terminology put forward not only by Mill, but by Professor Hermann Wagner as well,³ who aggregated into a single component of the littoral the emerged and submerged parts of what was called the *Continental Plateau*. The latter concept was then conveniently divided into the Continental Shelf, Depressed Lands, Uplands, and Highlands, all of which merge into the Culminating Area. (Figure 1).

¹ M. W. Mouton, “Attempt to Define the Continental Shelf,” in *The Continental Shelf*, ed. M. W. Mouton (Dordrecht: Springer Netherlands, 1952), 6–45.

² H.R. Mill, *The International Geography* (London: G.N. Newns Limited, 1899), 47.

³ Mill, 47.

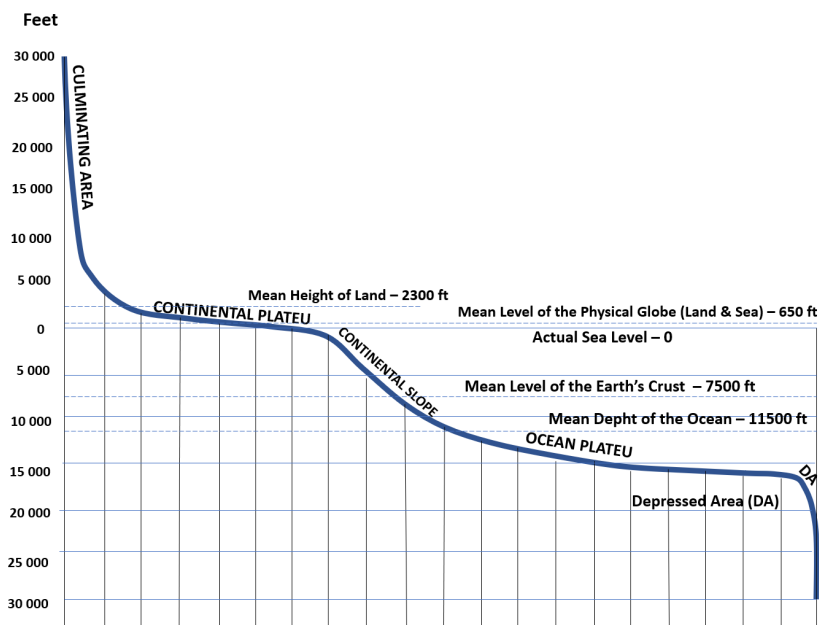


Figure 1. The Hypsographic Curve – Adapted from that of Professor Hermann Wagner and reproduced in Mill’s “The International Geography”⁴

This description incorporates, to some extent, the concept of natural extension of land territory, which would allow coastal states to later claim sovereignty over the resources on the continental shelf. According to Wagner, the continental shelf slopes very gently from the coast down to about one hundred fathoms or two hundred meters—six hundred or six hundred and sixty feet. Additionally, Mill’s purely physiographic reference also describes the continental shelf as the natural extension of the emerged territory of the coastal State into the sea, with a very gentle slope—in the order of 0.1° to 0.3° —and developing its extension to a depth of two hundred meters, at which point there is an abrupt variation in its slope. This magnitude of values prevailed, with due exceptions, to define the concept of *continental shelf* in terms of coastal resource appropriation, until the current definition presented in Article 76 of UNCLOS.

⁴ Mill, 47.

Succinctly, the continental shelf, together with the continental slope and continental rise, define the physiographic continental margin, a fundamental element of the present approach to the delimitation of the continental shelf, in accordance with Article 76 of UNCLOS.

It took about one decade for this new terminology to become part of the current legal terminology. In fact, the first legal reference that uses the concept of continental shelf dates to 1910—in the early days of the first Portuguese Republic—when trawling by steam ships within the limit of the physiographic continental shelf was prohibited. In this instance, the isobathymetric of one hundred fathoms was defined as the criterion for the outer limit of the continental shelf,⁵ and, as stated in the Portuguese legislation,⁶ the term *continental plateau* was used with a similar meaning to that of continental shelf, as a result of a concept defined by Wagner. This legislative act marked the official introduction of the continental shelf into State practice.

It was only in 1942 that an international treaty on such matters was signed between two States: The United Kingdom, as the administering power of Trinidad and Tobago, and Venezuela. This treaty—known as the Treaty of Paria (due to its geographic location⁷)—was drawn up under the auspices of the League of Nations and aimed at the exploitation of resources on the continental shelf common to those two States, as well as beyond their areas of sovereignty, which were their respective territorial seas.⁸ Furthermore, the purpose of seafloor exploration was around this period mainly centered on oil resources, as technological advances were increasingly allowing for deeper-water searches.

The Treaty of Paria also paved the way for what is today considered one of the most disruptive moments in this process—the Truman Declaration. In 1945, at the advent of the end of the Second World War, the then President of the

⁵ Edwin J Cosford, “The Continental Shelf 1910-1945,” *McGill LJ* 4 (1957): 246–47; *Ministério da Marinha e Colónias, Decreto Regulamentar Para Pesca Com Navios a Vapor (Diário do Governo n.º 31 de 10 de novembro de 1910. Publicado em Legislação Régia - Livro 1910-2, 1910), 76–77.*

⁶ *Decreto Regulamentar para Pesca com Navios a Vapor (Diário do Governo n.º 31 de 10 de novembro de 1910. Publicado em Legislação Régia - Livro 1910-2, 1910), 76–77.*

⁷ The Gulf of Paria is an 8,000 square kilometer shallow and enclosed inland sea located between the island of Trinidad (Republic of Trinidad and Tobago) and the coast of Venezuela.

⁸ Paulo Neves Coelho, “O Artigo 76º da Convenção das Nações Unidas sobre o Direito do Mar—A Problemática da Aplicação Técnica de Conceitos Jurídicos pela (in) controversa Comissão de limites da Plataforma Continental.” (Porto, FDUP, 2018), 50–51, <https://hdl.handle.net/10216/115797>.

United States of America, Henry Truman, signed two proclamations concerning the maritime policy of the United States of America:⁹ one related to fishing activity on the high seas and the other related to the natural resources in the soil and subsoil of the continental shelf. This proclamation, as well as the Treaty of Paria, stated that the arrangement would not interfere with the rights of shipping and would preserve the freedom of the seas, even if the resources in the water column and the continental shelf were claimed.¹⁰

A global discussion on this matter began as a natural reaction to this unilateral claim. Following several initiatives where the property rights of resources were a paramount issue, several South American States claimed the resources—both living and non-living—of their contiguous waters up to two hundred nautical miles. This approach was significantly different from the one adopted in the Truman Declaration, given that it had clearly departed from a geologic concept of the continental shelf. Therefore, it was necessary to find a common denominator that could overcome the noticeable disparities between the regimes adopted by the States.¹¹

Having Geneva as a setting for negotiations, the First United Nations Conference on the Law of the Sea was held in 1958, with the intention of creating the tools that would solve some of the maritime issues that were generating disagreements around the world. Four distinct conventions resulted from this conference—the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone; the 1958 Geneva Convention on the High Seas; the 1958 Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas; and the 1958 Geneva Convention on the Continental Shelf.¹² The latter, which attempted to determine a common formula for defining the outer limits of the continental shelf, would eventually reflect the practice of developing states and customary

⁹ *Policy of the United States With Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental*, Proclamation No. 2667, 10 FR 12303, (1945) 13 DSB 485; *Policy of the United States with Respect to Coastal Fisheries in Certain Areas of the High Seas*, Proclamation No. 2668, 10 FR 12304, 3 CFR, 1943-1948 Comp., p. 68; (1945) 13 DSB 486.

¹⁰ Håkon With Andersen, 'A Short Human History of the Ocean Floor', in *The Law of the Seabed*, ed. Catherine Banet (Boston, 2020), 75.

¹¹ Neves Coelho, "O Artigo 76º da Convenção das Nações Unidas sobre o Direito do Mar-A Problemática da Aplicação Técnica de Conceitos Jurídicos pela (in) controversa Comissão de limites da Plataforma Continental," 60–65.

¹² T. Treves, "The 1958 Geneva Conventions on the Law of the Sea" (United Nations Audiovisual Library of International Law, 1984), 5, https://legal.un.org/avl/pdf/ha/gclos/gclos_e.pdf.

international law in this matter to determine a common formula for defining the outer limits of the continental shelf.

With the widespread implementation of the resulting formula, inequalities among coastal States began to emerge. This formulation was based on the depth criterion, limiting the continental shelf in the geoscientific sense by setting a maximum depth of two hundred meters or, alternatively, on the criterion of exploitability, which capped the distance where the depth of adjacent waters would allow for the exploitation of natural resources. It was based on this second approach that developed and geographically favored states would find helpful advantages over developing states.¹³ This clearly unfair situation, in the context of global socioeconomic change, triggered the search for a more reasonable, fairer, and widely accepted formula to share seabed resources. The path for the Third United Nations Conference on the Law of the Sea had been set.

C. The Continental Shelf under UNCLOS

While summarizing the events that led to the Third United Nations Conference on the Law of the Sea, it is imperative to highlight the famously long speech given by Arvid Pardo, the Permanent Representative of Malta to the United Nations, as the necessary catalyst to kickstart a new round of negotiations for an ocean regime change. This was in 1967, a year when the world was highly polarized, under the threat of nuclear war, and on the eve of the end of a long era of cheap oil. However, starting in 1973, the timeframe of the Third United Nations Conference on the Law of the Sea overlapped two major oil shocks. The first in 1973, with the reaction of the OPEC to the Yom Kippur War; and the second, in 1979, during the political crisis in Iran and the subsequent dismissal of Shah Reza Pahlavi. The increasing cost of this critical source of energy marked a new era in international politics. As such, there was significant pressure from delegates to the Third United Nations Conference on the Law of the Sea to protect their national interests, and this would certainly be reflected in the resulting formulas that allowed them to universally establish the outer limit of the continental shelf. A major legacy from Pardo was to set a limited extension for

¹³ Paulo Neves Coelho, “A Convenção Das Nações Unidas Sobre o Direito Do Mar de 1982. O Futuro Do Oceano Global,” *Relações Internacionais*, No. 66 (June 2020): 19.

the continental shelf, so that the remainder of the seabed area would be regarded as the common heritage of humanity.

After eleven working sessions in the span of nine years, UNCLOS was finally available to be signed on December 10, 1982.¹⁴ The reached formulation to delineate the outer limit of the continental shelf, which gathered a consensus in the first sessions, would later be challenged by the newly elected Reagan administration. Close to the conference's conclusion, delegates of the United States of America attempted to mitigate the negative effects of this new approach on the North American private sector, particularly the significant ramifications on the mining and oil industries.¹⁵ With newly derived formulas to define the limits of the continental shelf and following the guiding principles in Pardo's speech, a new maritime paradigm emerged, splitting the total area of the seabed into two distinct domains—the national sovereignty and the international common heritage. The fact that coastal States now had a physically limited continental shelf was a sign of hope that existing resources in the marine seabed could be shared among all humanity.

From the coastal States' side, an incredible amount of effort is put into preparing their national submissions, under Article 76 of the Convention, for the CLCS, to have their outermost limits internationally recognized. Obviously, the sum of all the outer limits of all continental shelves, once determined, will ultimately define the outermost limit of the Area—the common heritage of humankind.

D. Setting the Outer Limits of the Continental Shelf under Article 76 of UNCLOS

In short, the wording proposed in the Convention is based on two consecutive stages. In the first stage, the outer edge of the continental margin is determined by adopting the criterion of 60 nautical miles measured from a reference point in the transition from the slope to the continental slope (the foot of the continental slope)—the Hedberg formula. The second criterion in defining the continental

¹⁴ T. Treves, 'The United Nations Convention on the Law of the Sea' (United Nations Audiovisual Library of International Law, 2008), 6, https://legal.un.org/avl/pdf/ha/uncls/uncls_e.pdf.

¹⁵ Clyde Sanger, *Ordering the Oceans: The Making of the Law of the Sea* (Toronto: University of Toronto Press, 1987), 49; Malcolm E Weiss, *One Sea, One Law?: The Fight for a Law of the Sea*, First Edit (New York: Harcourt Brace Jovanovich, 1982), 107.

margin relies on the sedimentary thickness of the base of the margin, where the thickness of the sediments should be at least 1% of the distance from a reference point—the closing foot of the slope (Figure 2).

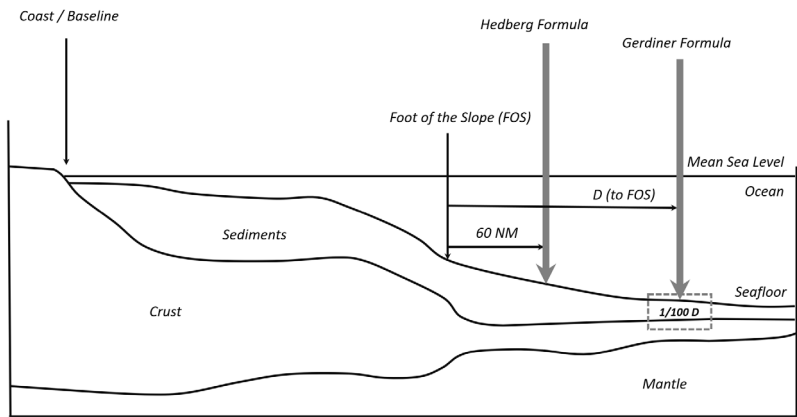


Figure 2. The formula to establish the outer edge of the continental margin, according to Article 76 of UNCLOS.

By having the continental margin defined, in the legal sense, as described by the provisions of Article 76 of UNCLOS, one is now able to set a physical limit to that margin. Therefore, the second phase consists of the application of a cut-off line over the previously derived margin (Figure 3).

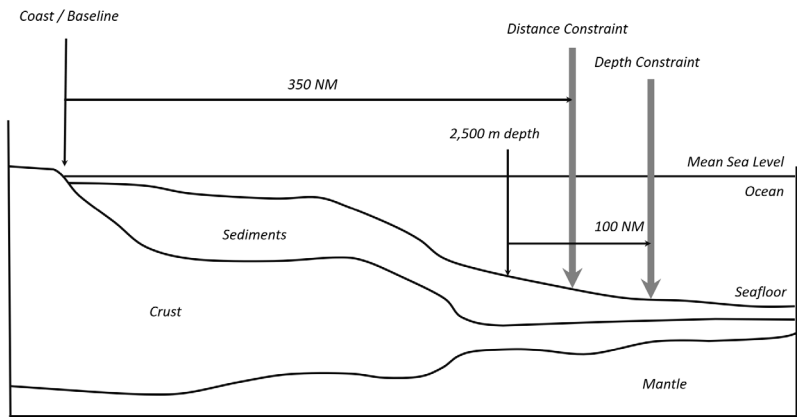


Figure 3. Both distance and depth constraints to be applied over the previously defined continental margin (three hundred and fifty nautical miles measured from the baselines and one hundred nautical miles measured from the 2,500-meter depth isobath).

Similarly, two types of cut-off lines should be applied, allowing the coastal State to select which one is more convenient for their solution. Thus, it can be applied either to the distance constraint, representing the line being measured three hundred and fifty nautical miles from the baselines, or to the depth constraint, representing the line being measured one hundred miles from the isobath metric line of 2,500 meters.¹⁶

It is, therefore, a complex, time-consuming, and expensive process. Furthermore, coastal States only have this spatial domain recognized after an independent commission has carried out a thorough analysis of the data and information that supports the claim, unlike the easier recognition process of other maritime spaces. The reason lies in the fact that the references upon which the measurements are made are not visible on the Earth's surface, which is not the case when trying to delineate the territorial sea and the EEZ.

E. The Commission on the Limits of the Continental Shelf

The CLCS is a United Nations body established under UNCLOS. Its major mandate is to consider all the data and information that coastal States present in their submissions, with the end goal of defining the outer limits of their respective continental shelves. The scientific data handed over allows the CLCS to validate the proposed submission and issue corresponding recommendations.¹⁷

To guarantee the fairness of the submissions' consideration, the members of the CLCS carry out their respective functions based on their individual capacity, despite being nominated by states parties to the Convention. Thus, the nature of the submitted data and information justifies the scientific background of the members, who, according to Annex II of the Convention, must be either hydrographers, geologists, or geophysicists.

The CLCS, along with the ITLOS and the Seabed Authority is one of the three bodies created by the Convention, but its mandate is expected to be limited in time—the time required to consider all submissions from coastal States seeking to extend their continental shelves beyond two hundred nautical miles.

¹⁶ Peter J Cook and Chris M Carleton, *Continental Shelf Limits: The Scientific and Legal Interface* (Oxford University Press, 2000), 257.

¹⁷ See, Article 76 of UNCLOS.

However, a hurdle arises from the disparity between the current time-wise expectations of having this process finished and the amount of time that was initially expected during the draft of the Convention that these processes would take. The participating delegates to the Third United Nations Conference on the Law of the Sea developed a formula to define the outer limit of the continental shelf based on the scientific knowledge of that time. The latter restricted how continental margins were established throughout the world—leading to a potential workload of about thirty submissions as the total amount of work to be carried out by the CLCS. This fact alone provided sufficient justification for the CLCS’ lifespan to be considered as temporary, with an original expectation of taking about a decade to conclude all the processes.¹⁸ One of the most impactful consequences of this miscalculation is now evident in the CLCS’ workload, which will be described later.

F. The Challenges for the Commission on the Limits of the Continental Shelf and their Implications for the Law of the Seabed

The present knowledge regarding the mapping of the seabed, which is highly detailed due to the progressive development of maritime technologies, poses several challenges to coastal States, the CLCS, and the international community. This is, ultimately, a three-party game.

The challenge for coastal States lies in preparing their own national submissions to extend their continental shelf and to guarantee that the maximum extension possible beyond two hundred nautical miles is achieved. Obviously, this maximum extension is limited to the formula and constraints asserted in UNCLOS.¹⁹ However, the quality of the data is crucial for the success of each national submission, which, in turn, will improve the search for better solutions. For instance, several States provide new and more detailed sets of data to support their submissions, even during their consideration process, to maximize initial expectations. Although this procedure involves costs to the coastal State—sometimes considerably high—the return on potential profits of sovereignty rights over existing resources ends up compensating for the investment made.

¹⁸ Arvid Pardo, “An Opportunity Lost,” in *Law of the Sea: U.S. Policy Dilemma*, ed. Bernard H. Oxman, David D. Caron, and Charles L. O. Buder (San Francisco: Institute for Contemporary Studies, 1983), 22.

¹⁹ See, Article 76 of UNCLOS.

Similarly, this situation also significantly impacts the CLCS, as the new, more multifaceted, and sophisticated data in support of the outer limit implies that the entirety of the review process becomes more complex, demanding a higher level of expertise and time from its members to properly examine all the new submitted information, leading to delays in the examination of States' submissions. The length of time it takes the CLCS to produce recommendations, with no appreciable increases in that period, serves as an example of these delays. The intricacy of recent submissions outweighs the anticipated performance increase over time (Figure 4), which results from the CLCS gathered experience. It should also be mentioned that the CLCS only met for eight weeks annually up to the end of the third-term in 2012; with the start of the fourth term, this length was later extended to twenty-one weeks. Although the CLCS had more time to review applications, as can be seen in the following graphic (Figure 4), there was no actual increase in the total number of submissions.²⁰

Despite the time available to the CLCS almost tripling, the careful analysis of the submissions means that the number of recommendations issued has remained practically unchanged. More working sessions are now being held for each of the submissions—unlike what occurred in earlier sessions—due to the increasing complexity of the proposals, together with the ambition of each coastal State to defend its interests.

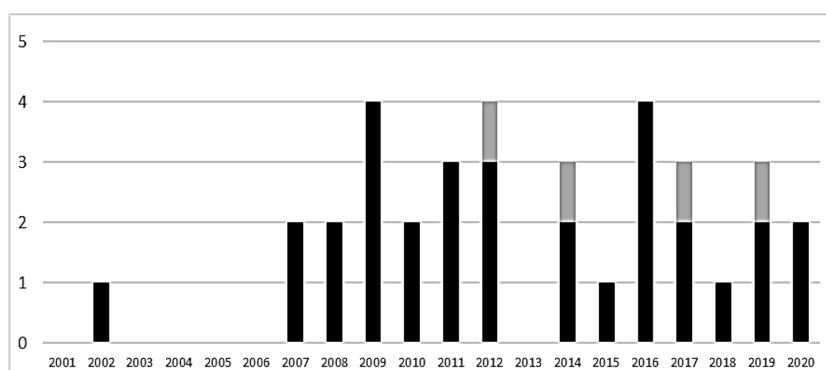


Figure 4. Evolution of the number of recommendations issued by the CLCS on the submissions originally proposed (black) and on the revised ones (grey).

²⁰ Aldino Santos Campos, “The Challenges of the Commission on the Limits of the Continental Shelf,” in *Global Challenges and the Law of the Sea* (Springer, 2020), 191–202.

Furthermore, if the recommendations are not in accordance with the expectations of coastal States, they usually end up internally re-analyzing the causes of failure and resubmitting them again to the CLCS for further consideration, presenting new data and information to support this so-called resubmission. This brings us to the challenges faced—more broadly speaking—by the international community. The general delay in the processes of extension of the continental shelf can also be interpreted as delays in defining the boundary of the Area—which is, as mentioned above, part of the common heritage of humankind—given that only after coastal States define the outer limits of their continental shelf and obtain the respective validation from the CLCS will we have completely defined it. There are several doubts that can be raised when discussing this general delay. In addition to those previously mentioned, we can also highlight the enormous volume of submissions in recent years about the growing complexity of the process (Figure 5).

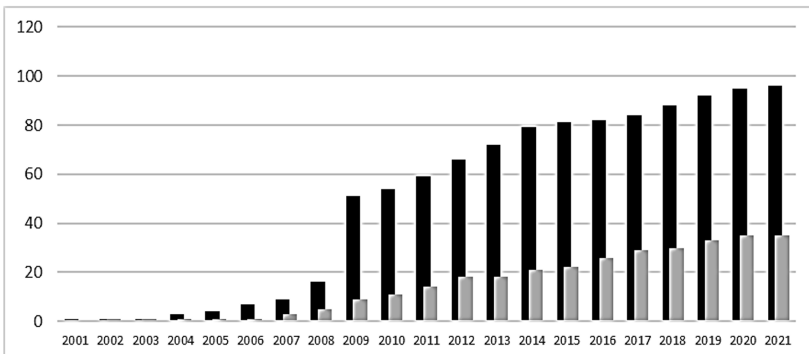


Figure 5. Comparing the cumulative values between the submissions (new and revised — in black) and the issued recommendations (grey) by the CLCS.

As seen in Figure 5, the rise in the number of submissions that make up the workload of the CLCS has not yet stopped. Since 2009, when the first large set of submissions was submitted, this number has only continued to grow, and today it almost doubles the one recorded that year. If one adds to these statistics the number of cases referring to States that have already manifested their intention

to present their national submissions, then it is only expected that the workload will continue to grow in the coming years.²¹

This reality is enough to demonstrate the miscalculation made during the Third Conference on the Law of the Sea, as the estimated timespan of ten years has long been exceeded. In fact, the CLCS is currently celebrating its 25th anniversary, and it is roughly halfway through reviewing the volume of proposals submitted, even though this reference point is quite ambiguous, as more submissions are expected to come. Another situation that impedes the prospects of the conclusion of this process lies in the opportunity that is given to coastal States to be able to resubmit their own proposals after receiving recommendations. This ties up a lot of CLCS resources because if the coastal State in question and the CLCS do not reach agreement on the recommendations, the State can always revise or improve its submission to best meet its objectives. For example, the Russian Federation and Brazil were the first two States to present their submissions, in 2001 and 2004, respectively, and their submissions, after several resubmissions, are still under consideration today. For the coastal State, the great advantage of this is that it is not necessary to wait for the establishment of a new subcommission to consider this additional effort since the one that was originally created is also responsible for the analysis of these resubmissions.

The downside of this procedure is that States that are on the waiting list for the establishment of their respective subcommissions will have to wait until these resubmission processes are completed. In an environment where an increasing number of States are resubmitting their submissions—associated with a higher number of original submissions still to be considered—States that have recently submitted theirs may have to wait several decades before they have their subcommissions established. This is indeed very frustrating for coastal States that have put a lot of effort into the development of their submissions. This constitutes a serious issue at the level of international relations since it only further postpones the establishment of a definitive boundary between States' sovereign areas and the international seabed.

In addition to the consequences brought by these delays, if we consider the obstacles that inhibit the consideration of submissions, such as the application

²¹ Aldino Manuel dos Santos de Campos, 'Governança Dos Oceanos—O Desafio Global Para o Século XXI', 2021, 372.

of paragraph 5 of Annex I of the Rules of Procedure of the CLCS,²² in the case of territorial or maritime disputes between States, then we will end up having even more obstacles in defining the line that splits seabed sovereignty. Although the application of this clause supposedly “*speeds up*” the progress in going through the list of pending submissions, the reality is that it only pushes one more submission to be considered in an uncertain future, contributing to a lengthening of the timespan that it will take to establish the ultimate line to set the international boundaries. Obviously, this waiting stage will lead to an almost eternal existence of the CLCS, given the fact that only when all disputes are resolved between States regarding their own submissions, which can take decades, will the CLCS finally be able to cease to exist. We will have to wait several decades to figure out how these problems will be solved if they even have a solution in the first place.

G. Conclusion

Recalling the famous sentence in the literary piece *Mending Wall*, “good fences make good neighbors”²³—and using it in the context of humankind’s boundary issues, we can promptly conclude that lines of jurisdiction are promoters of peace and stability at both the regional and global level. All around the world, territorial disputes and successive violations of border lines are constantly being witnessed—whether on land or at sea—so the primary challenge for States is to ensure that these lines are accepted and respected internationally.

In trying to fathom the complexity of this great challenge, the UNCLOS lays down a myriad of maritime limits—like the EEZ—that must be established by coastal States, in line with what is considered common practice at the international level. We observe that this is not always the case, maximizing whenever possible the elements involved in a way that results in an increase in their domains of jurisdiction. One of the key challenges that coastal States currently face, as demonstrated, is the definition of the outer limit of their continental shelves, which is a challenge that can be divided into two distinct phases. The first, preparatory phase, is carried out by the State and encompasses the process of preparing a

²² Constance Johnson and Alex Oude Elferink, ‘Outer Limits of the Continental Shelf and’ Disputed Areas’: State Practice Concerning Article 76 (10) of the LOS Convention’, *The International Journal of Marine and Coastal Law* 21, No. 4 (2006): 465.

²³ Robert Frost, “Mending Wall,” in *North of Boston*, David Nutt (1914; repr., Akasha Pub. LLC, 2008).

submission of the limits that has been internally agreed upon based on Article 76 and often maximizing the interests of the respective State. The second, the review phase, where such proposal is thoroughly analyzed, considering all supported sets of data and information, and later validated by the CLCS.

The sheer dimension and complexity of this review process indicates that it will undoubtedly take several decades to complete, being far different from the initial idea drafted during the Convention. In other words, the global line that distinguishes between national and international jurisdictions will end up being a mirage in the long desert that has yet to be crossed—the conclusion of the consideration of all submissions to extend the coastal states' continental shelves. In addition to this interminable validation processes, the need remains to define the bilateral limits of each coastal State's continental shelf in the event of overlapping between opposite or adjacent coastal States.

CHAPTER 10 |

SEA-LEVEL RISE IN RELATION TO INTERNATIONAL LAW. THE WORK OF THE INTERNATIONAL LAW COMMISSION REGARDING LAW OF THE SEA ISSUES

Patrícia Galvão Teles and Daniela Martins Pereira

A. Introduction

According to the IPCC Special Report published in 2019,¹ sea-level rise has reached unprecedented levels and is likely to reach up to one meter and ten centimeters meters by 2100, negatively impacting inhabitants of low-lying coastal areas and small island States.

The phenomenon of sea-level rise raises a number of issues relevant to international law due to its physical effects, particularly in coastal areas.² To the extent that they concern issues related to the law of the sea, these issues relate to the legal implications of the inundation of low-lying coastal areas and islands on their baselines, on maritime zones and on the delimitation of maritime zones. Indeed, sea-level rise raises questions about baselines and maritime zones because, under the international law of the sea, maritime entitlements flow from land according to the principle that *the land dominates the sea*. The low water line along the coast³ will move inland, and some geographical features used as base points may be inundated and lost.

Sea-level rise is already contributing to the regression of coastlines through coastal erosion. Consequently, some islands have been flooded or submerged

¹ IPCC, *Special Report on the Ocean and Cryosphere in a Changing Climate* (2019) [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)], available at <https://www.ipcc.ch/srocc/>

² Core aspects of international law are under threat, especially with regard to criteria of statehood and state territory.

³ Also known as *normal baseline* under Article 5 of UNCLOS.

during extreme weather events. The long-term impacts of climate change and sea-level rise could even lead to the loss of an entire island due to partial or complete inundation. It is likely that the most vulnerable States, particularly low-lying coastal States and small island States, will be affected because coastal inundation will make these zones uninhabitable. This raises some important legal questions:

- (i) what are the legal implications of the inundation of low-lying coastal areas and islands on their baselines, whether by agreement or adjudication?
- (ii) what are the legal implications of the inundation of low-lying coastal areas and islands on the maritime zones extending from those baselines, whether by agreement or adjudication?
- (iii) what are the legal implications of the inundation of low-lying coastal areas and islands on the delimitation of maritime zones, whether by agreement or adjudication? and
- (iv) what are the implications for the rights of States in relation to the maritime zones referred to in each of the previous questions?

Maritime claims to maritime zones by coastal States are measured from baselines. Baselines are located at the interface between the land area and sea and are important for both maritime jurisdiction and boundary delimitation. They divide the internal waters of a coastal State from the territorial sea and are the starting point for delimitations between adjacent and opposite States with overlapping claims to maritime areas.

If there are physical changes to the particular land features upon which maritime entitlements depend, the question is whether the corresponding changes also affect those maritime entitlements. However, UNCLOS is silent on the question of whether these baselines—and therefore maritime zones—shift or remain stable and effective, and on the legal solution for coastal changes or/and disappearance of features on which baselines and base points are established. Case law on maritime delimitation also provides little guidance. Delegates to the Third United Nations Law of the Sea Conference did not anticipate substantial changes in coastal geography caused by the sea-level rise phenomenon. Given this silence, therefore, it has been interpreted as prescribing an ambulatory

character for baselines and outer limits:⁴ They move as the sea-level rises. A logical consequence of the *ambulatory theory* of baselines is that the impact of sea-level rise on coastlines leads to a significant loss of jurisdiction for coastal States. With the purpose of minimizing these legal impacts, scholars have proposed a number of different options, including unilateral, regional, or multilateral responses, either by reference to existing law or by requiring modification or development of the law—*de lege ferenda* modalities. These include:

- (i) the physical reinforcement of the coastline;
- (ii) the formal publication of nautical charts with fixed baselines;
- (iii) the interpretation of UNCLOS to permit fixed baselines;
- (iv) the amendment of UNCLOS, including by way of a modification agreement;
- (v) the invocation of historical rights;
- (vi) the development of a customary norm to permit fixed baselines; and
- (vii) the adoption of a General Assembly Resolution.

To examine some of the legal questions posed by sea-level rise, the ILA established the Committee on Baselines under the International Law of the Sea in 2012 to identify, clarify or develop existing law concerning the normal baseline that arises in response to potential sea-level rise and the effects this may have, particularly on low-lying and small island developing States.

According to the traditional understanding, it concluded that the normal baseline is ambulatory and that existing law does not offer an adequate solution to a total territorial loss due in part to sea-level rise.⁵ The Committee stated

⁴ See, Article 5 of UNCLOS. See, for instance, David D. Caron, “When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level,” *Ecology Law Quarterly*, 1990. In his opinion, Articles 7(2) and 76(9) of UNCLOS *negatively imply* that baselines are ambulatory.

⁵ Committee on Baselines under International Law of the Sea, “Baselines under the International Law of the Sea” (International Law Association - Sofia Conference, Sofia, 2012), 33, <https://ilareporter.org.au/wp-content/uploads/2015/07/Source-1-Baselines-Final-Report-Sofia-2012.pdf>, in which in relevant part states:

[...] the normal baseline is ambulatory, moving seaward to reflect changes to the coast caused by accretion, land rise, and the construction of human-made structures associated with harbour systems, coastal protection and land reclamation projects, and also landward to reflect changes caused by erosion and sea-level rise. Under extreme circumstances, the latter category of change could result in total territorial loss and the consequent total loss of baselines and of

that (i) loss of state territory due to sea-level rise is not primarily a baseline or law of the sea issue; and (ii) a substantial territorial loss is a much broader issue involving concerns of statehood, national identity, human rights, refugee status, state responsibility, access to resources and international peace and security.⁶ At the 2012 ILA Sofia Conference, it was acknowledged that this array of issues would need to be addressed by a committee established specifically for the purpose of addressing such a broad range of concerns.⁷ Later that year, in November, the Executive Committee of the ILA approved the establishment of the new committee—the *Committee on International law and Sea-level rise*—whose mandate includes:⁸

[the] study [of] the possible impacts of sea-level rise and the implications under international law of the partial and complete inundation of state territory, or depopulation thereof, in particular of small island and low-lying states;

[the] develop[ment of] proposals for the progressive development of international law in relation to the possible loss of all or of parts of state territory and maritime zones due to sea-level rise, including the impacts on statehood, nationality, and human rights.

An interim report of that Committee—presented at the 2016 Johannesburg Conference—focused on issues regarding the law of the sea and migration and human rights.⁹ Another report was considered at the Sydney Conference,¹⁰ which completed the work of the Committee on law of the sea issues. The Committee proposed a *de lege ferenda* solution for maintaining the baselines or outer limits of maritime zones that were established in accordance with UNCLOS. In 2018, it noted that some Pacific Island States intend to maintain

the maritime zones measured from those baselines. The existing law of the normal baseline does not offer an adequate solution to this potentially serious problem

See, Committee on Baselines under International Law of the Sea, 31.

⁶ Committee on Baselines under International Law of the Sea, “Baselines under the International Law of the Sea,” 31.

⁷ International Law Association, Resolution No. 1/2012, *Baselines under the international law of the sea* (2012), available at <https://ilareporter.org.au/wp-content/uploads/2015/07/Source-2-Baselines-Resolution.pdf>.

⁸ Davor Vidas, David Freestone, and Jane McAdam, “Sydney Conference (2018). International Law and Sea Level Rise,” Report of the Committee of International Law and Sea Level Rise (Sydney: International Law Association, 2018), 1, https://www.ila-hq.org/en_GB/documents/conference-report-sydney-2018cteeversion.

⁹ Davor Vidas, David Freestone, and Jane McAdam, “Johannesburg Conference (2016). International Law and Sea Level Rise,” Report of the Committee of International Law and Sea Level Rise (Johannesburg: International Law Association, 2016), https://www.ila-hq.org/en_GB/documents/conference-report-johannesburg-2016-11.

¹⁰ Vidas, Freestone, and McAdam, “Sydney Conference (2018). International Law and Sea Level Rise.”

their maritime entitlements in the face of sea-level rise, particularly as noted in Resolution 5/2018 on maritime limits and boundaries in relation to sea-level rise,

[...] the Committee has presented evidence of the emergence of State practice, particularly in the South Pacific region, indicating that small island States intend to maintain the baselines and limits of their current maritime zones established in accordance with the 1982 Law of the Sea Convention for the future, notwithstanding physical coastline changes brought about by sea-level rise.¹¹

Three main issues were identified for the Committee to address, namely (i) the law of the sea; (ii) forced migration and rights of affected populations; and (iii) issues of statehood and international legal personality. Although much individual research has been conducted on each of these topics in recent years, the Committee considered that it could make a useful contribution by synthesizing these various issues, identifying interrelationships, and considering options for *de lege ferenda* proposals.

The outcome provided an important background for the proposal of the International Law Commission, which covers (i) the law of the sea; (ii) the topic of statehood; and (iii) the protection of persons affected by sea-level rise. The results are intended to inform the extent to which existing international law is capable of responding to the new problems arising from the impacts of climate change, and whether State need to develop solutions—and what those solutions look like—to respond to those adverse impacts. The issue of *sea-level rise in relation to international law* had been mentioned on two separate occasions:

- (i) In respect of the topic of *protection of the atmosphere*, in the Report of the International Law Commission on the work of the sixty-ninth session,¹² particularly (a) when it mentions that “[a]ware also, in particular, of the special situation of low-lying coastal areas and small island developing States due to sea-level rise;”¹³ (b) when it refers to groups particularly

¹¹ International Law Association, *Resolution No. 5/2018* (2018), available at https://www.ila-hq.org/en_GB/documents/conference-resolution-sydney-2018-english-2

¹² General Assembly, Report of the International Law Commission on the work of the sixty-ninth session, May 1 to June 2, 2017, and July 3 to August 4, 2017, Supplement No. 10 (A/72/10), pp. 148–162, available at: undocs.org/en/A/72/10.

¹³ General Assembly, p. 149.

vulnerable such as people of low-lying coastal areas and small island developing States affected by sea-level rise;¹⁴

- (ii) In respect to the topic of *protection of persons in the event of disasters*, the draft articles (2016) applies to different types of *disasters*, including with regard to *slow-onset events*, such as sea-level rise.¹⁵

Against this background, the International Law Commission has proposed to examine this issue through various legal lenses.

B. Inclusion of the Topic Sea-Level Rise in Relation to *International Law in the Work Program of the International Law Commission*

The inclusion of the topic in the agenda was met with great interest and support. At the seventy-second session of the General Assembly, fifteen delegations in the Sixth Committee of the United Nations—Indonesia, Micronesia, Peru, Romania, Tonga, and the Pacific Small Island Developing States—requested the inclusion of the topic in the work of the program of the Commission. On January 31, 2018, there was a proposal from the Federated States of Micronesia to include the topic *Legal Implications of sea-level rise* in the long-term program of work of the Commission.¹⁶

In 2018, the International Law Commission proposed to include the issue of *sea-level rise in relation to international law*, as States most affected by this phenomenon expressed their concern. In December 2018, the General Assembly noted the inclusion of this issue as a new topic in the long-term program of the International Law Commission.¹⁷ On January 31, 2018, the International Law Commission agreed to place the topic on its long-term program. In May 2019, the topic was added to the International Law Commission's current work program

¹⁴ General Assembly, p. 157.

¹⁵ General Assembly, *Draft articles on protection of persons in the event of disasters*, May 2 to June 10, 2016, and July 4 to August 12, 2016, Supplement No. 10 (A/71/10), pp. 21–23, available at: undocs.org/en/A/71/10.

¹⁶ General Assembly, *Report of the International Law Commission on the work of its seventieth session*, April 30 to June 1, 2018, and July 2 to August 10, 2018, Supplement No. 10 (A/73/10), p. 327, para. 7, fn.5, available at undocs.org/en/A/73/10.

¹⁷ General Assembly resolution 73/265, *Report of the International Law Commission on the work of its seventieth session*, A/RES/73/265 (January 14, 2019), available at undocs.org/en/A/RES/73/265.

and a study group on the topic was established on a rotating basis.¹⁸ It is currently chaired by Mr. Bogdan Aurescu, Mr. Yacouba Cissé, Ms. Patrícia Galvão Teles, Ms. Nilüfer Oral and Mr. Juan José Ruda Santolaria. This format—a different model from what the International Law Commission has done in the past—was intended to allow a flexible approach to address the novelty of the challenges. The structure of the International Law Commission’s work was described in the syllabus: The Study Group is to analyze existing international law, including treaty law and customary international law, as well as state practice. The work must be consistent with the International Law Commission’s mandate to progressively develop international law and its codification,¹⁹ provided it does not involve “[...] modifications to existing international law, such as the 1982 U.N. Convention on the Law of the Sea (UNCLOS).”²⁰

The work comprises three topics—law of the sea, statehood, and protection of persons—divided in two issues paper. The first dealt with aspects of the law of the sea—co-chaired by Mr. Bogdan Aurescu and Ms. Nilüfer Oral—was issued in June 2020.²¹ However, it could not be presented and discussed until June and July 2021 due to pandemic constraints. The second—presented at the seventy-second session in 2022—was prepared by Ms. Patrícia Galvão Teles and Mr. José Ruda Santolaria.²² It comprises the two remaining sub-topics—statehood and protection of persons affected by sea-level rise. The work of the Study Group does not aim to cover all legal aspects of this phenomenon. Therefore, it has chosen not to address issues of (i) responsibility or liability for sea-level rise;

¹⁸ The most common working method of the International Law Commission is for a special rapporteur to propose draft principles, draft articles, conclusions, or guidelines for consideration by the International Law Commission. The International Law Commission has also established study groups in the past. This is the case with the Study Group on *Fragmentation of international Law: Difficulties Arising from the Diversification and Expansion of International Law* (2002–2006).

¹⁹ See, Article 15 of the Statute of the International Law Commission. See also, General Assembly, *Report of the International Law Commission on the work of its seventieth session*, p. 328, para. 14.

²⁰ General Assembly.

²¹ General Assembly, *Sea-level rise in relation to international law: First issues paper by Bogdan Aurescu and Nilüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law*, February 28, 2020, available at: undocs.org/en/A/CN.4/740. See also, General Assembly, [Corrigendum] *Sea-level rise in relation to international law: First issues paper by Bogdan Aurescu and Nilüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law*, August 3, 2021, available at: undocs.org/en/A/CN.4/740/Corr.1.

²² General Assembly, *Sea-level rise in relation to international law: Second issues paper by Patrícia Galvão Teles and Juan José Ruda Santolaria, Co-Chairs of the Study Group on sea-level rise in relation to international law*, April 19, 2022, available at: undocs.org/en/A/CN.4/752.

(ii) environmental impacts; or (iii) peace and security that are excluded from the scope of this topic. In the following sections, we will focus our analysis on the first issues paper.

C. First Issues Paper and the 2021 International Law Commission Debate

The first issues paper was issued in 2020, co-chaired by Mr. Bogdan Aurescu and Ms. Nilüfer Oral, on law of the sea issues.²³ It focuses on six main legal issues:

- (i) Possible legal effects of sea-level rise on baselines and the outer limits of maritime spaces measured from baselines;
- (ii) Possible legal effects of sea-level rise on maritime delimitations;
- (iii) Possible legal effects of sea-level rise on islands to the extent that they play a role in establishing baselines and maritime delimitations;
- (iv) Possible legal effects of sea-level rise on the exercise of sovereign rights and jurisdiction of the coastal State and its nationals in maritime spaces in which boundaries or baselines have been established, particularly with respect to the exploration for and exploitation and conservation of their resources, and on the rights of third States and their nationals, including innocent passage, freedom of navigation, fishing rights;
- (v) Possible legal effects of sea-level rise on the status of islands, including rocks, and on the maritime entitlements of a coastal State with fringing islands; and
- (vi) Legal status of artificial islands, land reclamation, or island fortification activities under international law in response/adaptive measure to sea-level rise.

The preservation of maritime zones is the key issue and should be regarded as part of *progressive development of international law*. There is an emerging practice, a development of practice with which the International Law Commission is dealing in depth. In relation to the first question—on the legal effects of

²³ General Assembly, *Sea-level rise in relation to international law: First issues paper* by Bogdan Aurescu and Nilüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law. See also, General Assembly, [Corrigendum] *Sea-level rise in relation to international law: First issues paper* by Bogdan Aurescu and Nilüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law.

sea-level rise on baselines and the outer limits of maritime spaces measured from baselines—the Study Group advanced the following conclusions:²⁴

- (i) The Convention has been interpreted to mean that the baselines and the outer limits of the maritime zones measured from them are invariable, except for the invariable seaward limits of the continental shelf and coastlines, which are highly unstable due to deltas and other natural phenomena. However, these two exceptions cannot be used to address the effects of sea-level rise;²⁵
- (ii) Although the Convention is intended to prescribe the ambulatory theory, the latter does not address the concerns expressed by Parties to UNCLOS regarding the impacts of sea-level rise, particularly regarding the right of coastal States in the various maritime zones and the consequent need to maintain legal stability, security, certainty, and predictability;²⁶
- (iii) The proper approach to the concerns posed by sea-level rise rests on the preservation of the baselines and the outer limits of the maritime zones measured from them, as well as the entitlements of the coastal State;²⁷
- (iv) Nothing prevents Parties to UNCLOS from (a) depositing notifications regarding the baselines and the outer limits of maritime zones measured from the baselines in accordance with the Convention, and (b) not updating such notifications after the adverse effects of sea-level rise have occurred in order to preserve its entitlements.²⁸

Furthermore, there is a body of state practice under development regarding the preservation of baselines and outer limits of maritime zones measured from baselines. This state practice refers to establishing fixed baselines and outer limits of maritime zones measured from baselines by both *freezing* the notifications and ensuring physical protection of their coasts from the effects of sea-level rise.²⁹

²⁴ General Assembly, *Sea-level rise in relation to international law: First issues paper by Bogdan Aurescu and Nilüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law*, pp. 23 onwards.

²⁵ General Assembly, pp. 28 and 41, paras. 78 and 104(c) respectively.

²⁶ General Assembly, pp. 29 and 41, paras. 79 and 104(d) respectively.

²⁷ General Assembly, p. 41, para. 104(e).

²⁸ General Assembly, p. 41, para. 104(f).

²⁹ General Assembly, pp. 30 and 40–41, paras. 83, 103 and 104(g) respectively.

In relation to the second question—on the legal effects of sea-level rise on maritime delimitations—the Study Group made the following preliminary observations:³⁰

- (i) To ensure legal stability, security, certainty, and predictability, existing maritime delimitations—established either effected by agreement or adjudication—must be maintained regardless of the coastal changes caused by sea-level rise;³¹
- (ii) Sea-level rise cannot be invoked under Article 62(2) of the VCLT as a fundamental change of circumstances for the termination or withdrawal from a treaty establishing a maritime boundary, since maritime boundaries are subject to the same regime of stability as any other boundary;³² and
- (iii) State practice generally supports the preservation of existing maritime delimitations—established either by agreement or adjudication—withstanding the coastal changes subsequently caused by sea-level rise.³³

The third question—on the possible legal effects of sea-level rise on islands in terms of their role in constructing baselines and delineating maritime areas—raises four main points:³⁴

- (i) Insular features are particularly vulnerable to sea-level rise and can easily be permanently inundated, resulting in the loss of the baseline;³⁵
- (ii) Their permanent inundation may mean that they can no longer be used to establish base points for maritime delimitation. However, if inundation transforms it into a low-tide elevation located within the territorial sea, it can still be used as a base point;³⁶
- (iii) Islands may present relevant or special circumstances in maritime delimitations that may lead to an adjustment of the provisional equidistance line to achieve an equitable result;³⁷

³⁰ General Assembly, pp. 43 onwards.

³¹ General Assembly, pp. 44 and 54, paras. 112 and 141(b) respectively.

³² General Assembly, pp. 46 and 54, paras. 119 and 141(c) respectively.

³³ General Assembly, pp. 47 and 54, paras. 138 and 141(d) respectively.

³⁴ General Assembly, pp. 55 onwards.

³⁵ General Assembly, p. 55, para. 146.

³⁶ General Assembly, p. 56, para. 147.

³⁷ General Assembly, p. 56, para. 148.

- (iv) Partial and permanent inundation and/or reclassification as a rock,³⁸ a low-tide elevation, or the full permanent inundation—disappearance—of an island may result in the island no longer being considered a *relevant* or *special circumstance*.³⁹

In relation to the fourth question—on the legal effects of sea-level rise on the exercise of sovereign rights and jurisdiction of the coastal State and its nationals in maritime spaces in which boundaries or baselines have been established, particularly with respect to the exploration for and exploitation and conservation of their resources, and on the rights of third States and their nationals, including innocent passage, freedom of navigation, fishing rights—four main observations were highlighted:⁴⁰

- (i) The landward movement of the baseline and outer limits of the maritime zones would cause the coastal State to lose sovereignty and jurisdiction rights overregulating the navigation of third States and their nationals;⁴¹
- (ii) If the territorial sea becomes part of the EEZ, the coastal State would significantly restrict its sovereignty and jurisdiction rights over the navigation of third States and their nationals. Third States and their nationals would be entitled to exercise the right of freedom of navigation;⁴² and
- (iii) The loss of maritime entitlements with respect to the continental shelf—either in the case where the conditions of permanency are not met or in the case of the complete inundation of a fully entitled island—would have significant consequences to the coastal State if the area in question became part of the Area and came under the regime of the common heritage of mankind.⁴³

In relation to the fifth question—on the possible legal effects of sea-level rise on the status of islands, including rocks and on the maritime entitlements of a

³⁸ See, Article 121(3) of UNCLOS.

³⁹ General Assembly, *Sea-level rise in relation to international law: First issues paper by Bogdan Aurescu and Niliüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law*, p. 56, para. 148.

⁴⁰ General Assembly, pp. 56 onwards.

⁴¹ General Assembly, pp. 63 and 67, paras. 172 and 190(a) respectively.

⁴² General Assembly, pp. 64 and 67–68, paras. 177 and 190(b) respectively.

⁴³ General Assembly, pp. 64 and 68, paras. 179 and 190(c) respectively.

coastal State with fringing islands⁴⁴—the main question is whether a fully entitled island that has lost territory could be considered a rock for the purposes of Article 121(3) of UNCLOS.⁴⁵ It raises three main preliminary observations:

- (i) The partial inundation of a fully entitled island due to sea-level rise could call into question its possible reclassification from the category of a fully entitled island to that of a rock or even a low-tide elevation if the ability to sustain human habitation or economic life is lost. The criterion of sustaining human habitation and economic life may be particularly important in the case of islands that have been rendered uninhabitable by sea-level rise. This may be the result of (a) increased flooding due to elevated tides, (b) saltwater infiltration in freshwater supplies, (c) loss of agricultural land and food production, and (c) other factors that make the island uninhabitable for humans or impossible to sustain economic activities;⁴⁶
- (ii) The potential consequences of reclassification as a rock are significant—an island that has become uninhabitable due to sea-level rise might lose its EEZ and continental shelf entitlements;⁴⁷ and
- (iii) Low-tide elevations are defined under international law as naturally formed land areas surrounded by water but submerged at high tide and not forming a maritime zone. Low-tide elevations wholly or partially within the territorial sea may be used to delimitate the territorial sea—low-tide elevation used for *leapfrogging* purposes. Its inundation due to sea-level rise would result in a significant loss of territorial sea area to the coastal State.⁴⁸

In relation to the sixth question—on the legal status of artificial islands, land reclamation, or island fortification activities as a response/adaptive measure to sea-level rise—the following observations can be made:⁴⁹

- (i) The reclassification of an island entitled to all maritime zones to a rock could result in the loss of significant maritime space and associated entitlements.⁵⁰

⁴⁴ General Assembly, pp. 56 onwards.

⁴⁵ See also, Question VI below.

⁴⁶ General Assembly, *Sea-level rise in relation to international law: First issues paper by Bogdan Aurescu and Nilüfer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law*, p. 74, para. 205.

⁴⁷ General Assembly, p. 75, paras. 206–207. See also, Article 121(3) of UNCLOS.

⁴⁸ General Assembly, pp. 75–76, paras. 208–209.

⁴⁹ General Assembly, pp. 76 onwards.

⁵⁰ See, Article 121(3) of UNCLOS.

UNCLOS addresses the generation of maritime entitlements rights, but not the possibility of loss of maritime entitlements. There is also no State practice or common doctrine for reclassifying islands that have undergone physical changes due to natural causes;⁵¹

- (ii) A low-tide elevation that becomes a submerged feature that is below water at low tide could cause significant loss of maritime space to the coastal State;⁵²
- (iii) Preservation of maritime entitlements for islands that lose their ability to sustain human habitation or economic life of their own due to sea-level rise does not mean that new rights are created, only that existing rights are maintained;⁵³ and
- (iv) There is no definition of *artificial island*. There is general agreement that the use of artificial means to maintain base points, coastal areas, and island features is acceptable under international law, as evidenced by the widespread State practice.⁵⁴

In the debate, members generally felt that the topic was of particular importance and raised important issues that the International Law Commission could shed light on, including:

- (i) Highlighting the importance of the issue and the legitimacy of the concerns expressed by States affected by sea-level rise, and the need to address the issue in full recognition of its urgency;⁵⁵
- (ii) Suggesting that the Study Group—and the International Law Commission—distinguish clearly and transparently between *lex lata*, *lex ferenda*, and policy options from the outset to maintain credibility;⁵⁶
- (iii) Suggesting that the International Law Commission make full use of its own previous relevant work related to the subject, such as its conclusions

⁵¹ General Assembly, *Sea-level rise in relation to international law: First issues paper by Bogdan Aurescu and Niliifer Oral, Co-Chairs of the Study Group on sea-level rise in relation to international law*, p. 75, paras. 206–207.

⁵² General Assembly, p. 76, para. 209.

⁵³ General Assembly, p. 79, para. 218(d).

⁵⁴ General Assembly, pp. 76 and 80–81, paras. 213–214 and 218(e) respectively.

⁵⁵ General Assembly, *Report of the International Law Commission on the work of its seventy-second session*, A/76/10 (April 26 to June 4, 2021, and July 5 to August 6, 2021), p. 167, para. 263, available at undocs.org/en/A/76/10.

⁵⁶ General Assembly, p. 174, para. 285.

on the identification of customary international law and its conclusions on subsequent agreements and subsequent practice in relation to the interpretation of treaties;⁵⁷

- (iv) Supporting the analysis, including the preliminary observations in the first issues paper;⁵⁸
- (v) Agreeing on the need for stability, security, certainty, and predictability, and on the need to maintain the balance of rights and obligations between coastal States and other States, and disagreement on whether the preliminary observations in the first issues paper reflect these needs;⁵⁹
- (vi) Highlighting the lack of State practice—particularly in certain regions of the world;⁶⁰
- (vii) The question of whether States' statements and their submissions on State practice should and could be considered as giving rise to *emerging* rules of international law or subsequent practice for purposes of interpreting the relevant provisions of UNCLOS;⁶¹
- (viii) The question of whether States' statements in response to the first issues paper are adequate evidence of State practice in favor of fixed baselines, and the expression of the importance and relevance of such statements in the Sixth Committee of the United Nations in light of the insufficient availability of State practice;⁶²
- (ix) Suggesting that the International Law Commission conduct research—including reviewing the legislation of all States and the maritime zone notifications circulated by the Secretary-General under UNCLOS—in addition to requesting additional information from States;⁶³
- (x) Recognizing that the establishment of boundaries preserves the principles governing the oceans and the principles agreed upon the Parties to the Convention in their negotiations on maritime zones and boundaries.

⁵⁷ General Assembly, pp. 173–174, para. 285.

⁵⁸ General Assembly, p. 168, para. 266.

⁵⁹ General Assembly.

⁶⁰ General Assembly, p. 169, para. 268.

⁶¹ General Assembly.

⁶² General Assembly.

⁶³ General Assembly.

Fixing—or *freezing*—baselines would promote stability in the delimitation of maritime zones and in the bilateral and multilateral agreements on maritime delimitation;⁶⁴

- (xi) The lack of contributions from Latin American and African States, despite the members efforts to ask for more submissions from States on state practice, was also noted.⁶⁵

D. States' Reaction in the Sixth Committee of the General Assembly

During the debate in the Sixth Committee at the seventy-second session of the General Assembly (2017), fifteen States requested the inclusion of the issue and nine delegations mentioned the importance of the problem at stake.⁶⁶ In the debate during the seventy-third session (2018), twenty-six statements—out of fifty—welcomed the decision of the International Law Commission and supported the inclusion of the topic in the current work program. There was also a broad support for the decision of the International Law Commission to include the topic during the debate in the Sixth Committee of the United Nations at the seventy-fourth session of the General Assembly.

States that had made statements on the issue were largely in favor of including the topic in the work program of the International Law Commission. States generally seemed to agree that the outcome of the work of the International Law Commission on this topic should not affect or amend UNCLOS. The principles of certainty, security, and predictability and preserving a balance of rights and obligations between coastal States and other States were emphasized in States' during the debate of the Sixth Committee of the United Nations in 2019.

⁶⁴ General Assembly, p. 168, para. 266.

⁶⁵ General Assembly, p. 169, para. 268.

⁶⁶ Indonesia [General Assembly, *Summary record of the 24th meeting* (November 30, 2017), available at undocs.org/en/A/C.6/72/SR.24], Marshall Islands, on behalf of the Pacific small island developing States—Fiji, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu [General Assembly, *Summary record of the 24th meeting* (November 27, 2017), available at undocs.org/en/A/C.6/72/SR.22] requested the inclusion of the topic. Austria, Chile, India [General Assembly, *Summary record of the 22nd meeting*, November 27, 2017, p. 16, available at: undocs.org/en/A/C.6/72/SR.22], Israel, Malaysia, New Zealand, Republic of Korea, Singapore, [General Assembly, *Summary record of the 24th meeting* (November 30, 2017), pp. 11, 14–15 and 17], and Sri Lanka [General Assembly, *Summary record of the 23rd meeting* (November 17, 2017), available at undocs.org/en/A/C.6/72/SR.23] mentioned the topic in their statements.

The first issues paper was commented by some delegations in the Sixth Committee of the United Nations during the seventy-fifth session of the General Assembly (2020). Some of them expressed appreciation for the report and emphasized the importance and urgency of the topic. Most of them supported the inclusion of the topic in the work program of the International Law Commission.

There is also growing general support for the views of the Small Islands and Low-lying States. States' statements to the Sixth Committee represent a form of State practice that supports preserving existing maritime delimitations, irrespective of the effects of sea-level rise.

E. Current Developments

Some coastal States have begun formulating new policies and enacting new legislative measures to avoid or minimize the adverse effects of sea-level rise on baselines.

Since 2009, Pacific leaders have called for (i) the non-reduction of maritime jurisdiction, (ii) the maintenance of baselines in perpetuity, and (iii) the assurance that these baselines and maritime zones are not legally challenged by sea-level rise and climate change. In the South Pacific region in particular, therefore, a State practice has emerged that seeks to maintain baselines and maritime zones limits regardless of physical changes to the coastline brought about by sea-level rise—a practice that also covers the construction of artificial islands and coastal fortifications. This practice of establishing, depositing and maintaining their baselines and outer limits includes regional policy documents and domestic law.

Recently, many other states outside the South Pacific have also expressed support for the maintenance of maritime entitlements. The practice of most members to the PIF in defining maritime zones in accordance with the Convention shows that they prefer a particular fixed method of definition—coordinates—rather than relying solely on text or chart-based definitions of baselines and outer limits, as demonstrated by the *Pacific Boundaries Project*.⁶⁷

⁶⁷ The *Pacific Boundaries Project* uses coordinates to some extent in defining its baselines and maritime boundaries.

There are three elements necessary for the preservation of maritime zones: (i) the establishment of maritime zones through *fixed* methods; (ii) their notification to the international community through the Secretary-General of the United Nations; and (iii) their maintenance over time. This State practice is potentially relevant to the development of a general or particular rule of customary international law.

On August 6, 2021, the PIF leaders adopted a political declaration on sea-level rise and maritime zones—the *Declaration on Preserving Maritime Zones in the Face of Climate Change-Related Sea-Level Rise*,⁶⁸ in which they expressed their intention that their maritime zones and the rights and entitlements flowing from those zones be maintained regardless of the effects of sea-level rise.

[...] maritime zones, as established and notified to the Secretary-General of the United Nations in accordance with the Convention, and the rights and entitlements that flow from them, shall continue to apply, without reduction, notwithstanding any physical changes connected to climate change-related sea-level rise.

This declaration calls attention to the substance of State practice that might underpin such a claim and builds on previous regional statements on sea-level rise and maritime jurisdiction.⁶⁹ A month after its release, AOSIS adopted another declaration supporting the same interpretation regarding maritime zones limits and rights and entitlements in case of coastline changes due to sea-level rise.

F. Conclusion

Emerging State practice seems to provide an indication of what could be expected in the future, given the emerging pattern of States unilaterally declaring and publicizing their maritime jurisdictional baselines, outer limits and boundaries, that should be maintained in spite of sea-level rise. Yet, there still is no broad consensus in the international community for this practice. The International Law Commission's ongoing discussion on sea-level rise and

⁶⁸ Pacific Islands Forum, "Declaration on Preserving Maritime Zones in the Face of Climate Change-Related Sea-Level Rise," August 6, 2021, <https://www.forumsec.org/2021/08/11/declaration-on-preserving-maritime-zones-in-the-face-of-climate-change-related-sea-level-rise/>.

⁶⁹ See, for example, the Framework for a Pacific Oceanscape (2010), Taputapuātea Declaration (2015), and Delap Commitment on Securing Our Common Wealth of Oceans: Reshaping the Futures to Take Control of the Fisheries (2018). These texts are of soft law nature, that is, are non-binding political instruments.

the law of the sea can give a positive contribution to this issue, as its primary purpose is to shed light on the subject by identifying, clarifying, and providing some preliminary conclusions and recommendations.

As the climate changes, so do some of the key features of international law to which the law must react and adjust. The work of the International Law Commission is yet to be fully conclusive at this initial stage, but can be considered a starting point for analyzing the changes that international law is undergoing. Although the work of the Study Group may face some challenges since this is a topic that is sensitive for States, the interaction with States, international organizations, and civil society can be a good tool for consolidating the work of the International Law Commission as it addresses one of the crucial current challenges for the international community.

PART IV |

THE BLUE ECONOMY AND MARINE MINERAL RESOURCES

CHAPTER 11 |

A SEMIOTICS OF BLUE ECONOMY

Ricardo Serrão Santos

A. Introduction

It is not easy to define the exact meaning of the *Blue Economy* as it has been adopted and promoted by several industrial, commercial, governmental, societal and scientific actors. It is also referred to as *Ocean Economy*, *Economy of the Sea* or *Blue Growth*. It is widely accepted that the Blue Economy paradigm emerged at the Rio+20 Conference on Sustainable Development and in the context of the Green Economy.¹ In the European Union, it is part of the paradigm of the economic component of the Green Deal. It is a paradigm associated with sustainable development and inspires optimism for a new use of the oceans. It was included into the definition of the United Nations Sustainable Development Goals. Goal 14, *Life Underwater*, calls for (i) significant reductions in marine pollution; (ii) combating ocean acidification; (iii) sustainable management of marine resources; (iv) expanding scientific knowledge; and (v) transferring marine technology to developing countries, especially small island developing States.²

Since the Rio+20 Summit, the various actors interested in this economic sector have emphasized the growth potential of the oceans, believing it to be below its possibility. At the same time, they have reiterated the importance of the ocean in the overall context of the global economy. The ocean is portrayed as the world's seventh economy based on the analogy that the oceans' annual gross marine product is equivalent to a country's annual GDP.³

¹ I. Ertör and M. Hadjimichael, "Editorial: Blue Degrowth and the Politics of the Sea: Rethinking the Blue Economy," *Sustainability Science* 15, No. 1 (January 1, 2020): 1–10.

² United Nations, "Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development"; Ki-Hoon Lee, Junsung Noh, and Jong Seong Khim, "The Blue Economy and the United Nations' Sustainable Development Goals: Challenges and Opportunities," *Environment International* 137 (April 2020): 105528.

³ Hoeght Guldberg, "Reviving the Ocean Economy: The Case for Action – 2015" (Geneva: WWF International, 2015).

While the concept of *Sea Economy* or *Ocean Economy* is defined by the OECD as the sum of economic activities of ocean-based industries,⁴ the consolidation of the concept of *Blue Economy* is to be associated with the sustainable use of resources and the environment through the potential installation of new productive industries—energy, aquaculture, and environmental tourism—that complement or replace extractive practices. However, this also means that disputes over multiple and overlapping uses of the ocean’s marine environments could increase. Nowadays, we are confronted with a wide range of derivations reflecting the plethora of debates and actors,⁵ e.g., *Blue Revolution*,⁶ *Blue Energies*, *Blue Tourism*, *Blue Carbon*,⁷ *Blue Finance* and *Blue Bonds*,⁸ *Blue Bioeconomy* and *Blue Biotech*, *Blue Justice*,⁹ *Blue Food*,¹⁰ and *Blue Mining*.¹¹ There are so many terms that one can get lost among them. However, it is understood that there are standards that differentiate the *Ocean Economy* (or *Sea Economy*) from the *Blue Economy*. The standards relate to the sustainability of activities and the positive or negative impact on climate, biodiversity, etc. In a wide range of sectors, activities and interests, it is easy to get lured by *blue washing*. Therefore, I cannot help but reflect on these dualities and dissonances.

In the context of the Blue Economy paradigm, the debate around the concept of Blue Growth began—and gained particular weight—in the European Union

⁴ OECD, *The Ocean Economy in 2030* (OECD, 2016), 256, https://www.oecd-ilibrary.org/economics/the-ocean-economy-in-2030_9789264251724-en.

⁵ Guy Standing, *The Blue Commons: Rescuing the Economy of the Sea*, A Pelican Book (London: Pelican, 2022), 75.

⁶ Nicholas P. Sullivan, *The Blue Revolution: Hunting, Harvesting, and Farming Seafood in the Information Age* (Washington: Island Press, 2022), 272.

⁷ The Blue Carbon Initiative, “Mitigating Climate Change through Coastal Ecosystem Management,” <https://www.thebluecarboninitiative.org/>, accessed December 23, 2022, <https://www.thebluecarboninitiative.org/>.

⁸ International Finance Corporation 2021, “Guidelines Blue Finance. Guidance for Financing the Blue Economy, Building on the Green Bond Principles and the Green Loan Principles” (International Finance Corporation 2021, January 2022), <https://www.ifc.org/wps/wcm/connect/4a61d420-82b2-41e9-b2fd-b7fb0af38bba/IFC-Guidelines-for-Blue-Finance.pdf?MOD=AJPERES&CVID=ogvh-4f>.

⁹ Blue Justice, “Blue Justice Initiative,” <https://bluejustice.org/>, accessed December 23, 2022, <https://bluejustice.org/blue-justice-initiative/>. This initiative derives from the “The International Declaration on Transnational Organized Crime in the Global Fishing Industry,” 2018, <https://bluejustice.org/copenhagen-declaration/>. This declaration is also known as the *Copenhagen Declaration*.

¹⁰ Camilo Pareja/AFP/Getty, “Blue Food,” <https://www.nature.com/> (blog), accessed December 23, 2022, <https://www.nature.com/immersive/d42859-021-00055-6/index.html>.

¹¹ Oliver Langefeld and Angela Binder, “Blue Mining,” in *Yearbook of Sustainable Smart Mining and Energy 2021*, ed. Walter Frenz and Axel Preuß, vol. 1 (Cham: Springer International Publishing, 2022), 229–43, https://link.springer.com/10.1007/978-3-030-84315-1_13.

and other associated European countries, particularly Norway and Iceland. In my transition from science to politics, perhaps one of the topics that stood out most, full of dissonances, was the discourse on the promises and opportunities for the economy based on the parallel paradigm of Blue Growth.

At a side event on fisheries during the 2022 United Nations Ocean Conference in Lisbon,¹² it was interesting to note that a Ghanaian representative of the artisanal fishing sector described the increasing mention of the concept of *Blue Economy* as the equivalent of *Blue Fear* for the traditional and artisanal fisheries sector. How to create *Blue Trust* among sectors, with an increasing number of competing *blue activities* and *initiatives*?

B. An Economy of Extraction and Waste

Just a few decades ago, scientists and politicians claimed that the oceans were inexhaustible, unreachable, or even immune to threats. This perception of the oceans was based on misconceptions from the beginning. Moreover, the sustainability of the marine environment has not been an issue for centuries. In the seventeenth century, Hugo Grotius argued for freedom of fishing on the high seas in his seminal and anonymous work *Mare Liberum*. His argument—and I quote from his work—was that

[...] if many hunt on the land or fish in a river, the forest will soon be without game and the river without fishes, which is not so in the sea. Further, a river is easily emptied by conduit; it is not so in the sea.¹³

The idea of the alleged *immunity* of the seas and oceans and their resources remained until the last decades of the twentieth century. In those times, there were calls for greater use of living marine resources to feed the world's growing human population. The fact is that since the sixteenth or seventeenth century, when the diet shifted to marine fish due to the depletion of freshwater fish, the condition of the sea seemed to be one of almost incredible abundance.

¹² European Bureau for Conservation & Development, "The Future of the Ocean: Finding Cooperative Pathways towards 2030" (Side-Event, 2022 United Nations Ocean Conference, Lisbon, June 28, 2022), <https://ebcd.org/the-future-of-the-ocean-finding-cooperative-pathways-towards-2030/>.

¹³ Hugo Grotius, *The Free Sea*, ed. David Armitage, Natural Law and Enlightenment Classics (Indianapolis, Ind: Liberty Fund, 2004), 47.

In 1883, the eminent scientist Thomas Henry Huxley stated the following at the opening of the World Fisheries Exhibition in London,

I believe, then, that the cod fishery, the herring fishery, the pilchard fishery, the mackerel fishery, and probably all the great sea fisheries, are inexhaustible; that is to say, that nothing we do seriously affects the number of the fish. And any attempt to regulate these fisheries seems consequently, from the nature of the case, to be useless.¹⁴

This notion of the abundance and generosity of the seas continued in the following decades. In 1954, two eminent American scientists, Hawthorne Daniel, Director of the Woods Hole Marine Research Institute, and Francis Minot, a member of the New Museum of Natural History, published a book entitled *The Inexhaustible Sea*.¹⁵ In it, they acknowledged that

[a]s yet we do not know the ocean well enough. Much must still be learned. Nevertheless, we are already beginning to understand that what it has to offer extends beyond the limits of our imagination - that someday men will learn that in its bounty the sea is inexhaustible.¹⁶

With such a view from scientists in leading institutions, it is no wonder that fisheries entered very troubled waters at the beginning of the twenty-first century.

If the alleged knowledge is correct, we cannot risk crossing the line when new activities and impacts emerge, e.g., deep-sea mining, bioprospecting, or carbon sequestration/deposition, which are part of the concept of *Growth in the Economy of the Sea*.¹⁷ Not knowing, however, does not mean not having influence. So, knowledge and preservation must go hand in hand with *the need to care for our common home*. The ocean is a resource whose political boundaries are drawn

¹⁴ Thomas Henry Huxley, "T. H. H. Opening Fisheries Exhibition" (World Fisheries Exhibition, London, 1882), <http://aleph0.clarku.edu/huxley/SM5/fish.html>.

¹⁵ Daniel Hawthorne and Francis Minot, *The Inexhaustible Sea* (London: MacDonald, The Scientific Book Club, 1954). The book is a well-informed synthesis of knowledge about the Ocean and actual and projected economic activity in this era. It is also a call for the acceleration of oceanographic research and expresses a strong, imaginative, and enthusiastic belief in the opportunities for economic growth in ocean-related activities. The book is imbued with an oceanic feeling of unity, boundlessness, and infinity embedded in the spirit of the era, the echoes of which have not yet entirely disappeared.

¹⁶ Hawthorne and Minot, 239.

¹⁷ European Commission, "The European Files - Blue Growth Strategy," 2017, JUNE 2017 - n°47, <https://www.europeanfiles.eu/wp-content/uploads/2017/06/The-European-Files-Blue-Growth-Strategy-June-2017-Issue-47.pdf>.

by law. But the ocean—by its very nature—has no such boundaries. It is a shared and global responsibility and suffers the consequences of global warming.

Oceanographers have been predicting global warming since at least the 1950s—I refer to Roger Revelle and Wallace Smith Broecker.¹⁸ The latter popularized the term *global warming* in 1975 when he wrote that “[...] we are on the cusp of a long period of the rapid warming of several decades.”¹⁹ He knew something had to be done to manage the process. Something that could not be done by scientists alone. Broecker therefore advocated political action to address the problem. In 1984, he told a subcommittee of the House of Representatives of the United States of America that urgent action was needed to stop the rise of greenhouse gases in the atmosphere because the climate system could “change abruptly from one state to another,” with devastating effects.²⁰

The Paris Agreement was not signed until 30 years later. However, the ocean was not specifically mentioned in the articles of the Declaration,²¹ although the first evidence of climate change was provided by oceanographers, as I mentioned earlier. This evidence results from solid science supported by ongoing investment in observational, monitoring, and research systems at sea and in the atmosphere. The problems facing the marine environment are severe and urgent—acidification, oxygen depletion, temperature increases, changes in coastal currents and processes, impacts on fisheries, and pollution from plastic and other sources.

¹⁸ Roger Revelle and Hans E. Suess, “Carbon Dioxide Exchange Between Atmosphere and Ocean and the Question of an Increase of Atmospheric CO₂ during the Past Decades,” *Tellus* 9, No. 1 (February 1957): 18–27; Wallace S. Broecker, “The Carbon Cycle and Climate Change: Memoirs of My 60 Years in Science,” *Geochemical Perspectives*, 2016, 221–339.

¹⁹ Wallace S. Broecker, “Climatic Change: Are We on the Brink of a Pronounced Global Warming?,” *Science* 189, No. 4201 (August 8, 1975): 460–63.

²⁰ John Norton Moore, “Senate Advice and Consent to the Law of the Sea Convention” (Before the Senate Foreign Relations Committee, Senate of the United States of America, Washington D.C., October 14, 2003), <https://www.foreign.senate.gov/imo/media/doc/MooreTestimony031014.pdf>.

²¹ Paris Agreement (December 12, 2015), 3156 UNTS 54113. 1. The declaration just “takes note” of oceans in the preamble among a plethora of systems as follows: [n]oting the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity, recognized by some cultures as Mother Earth, and noting the importance for some of the concept of ‘climate justice’, when taking action to address climate change.

C. Thresholds of Growth

Despite the growing population, the global economy will likely not simply require more resources and energy. It will need new kinds of production and distribution of resources, including food, renewable energies, and a strong investment in circular economy. The seas and oceans—already a solid base for income and production—will be even more so in the future. However, it would be better to achieve this not through accumulation, as has been the case, but through substitution, alternatives, and paradigm shifts.

If we measure the contribution of ocean-based sectors to economic output and employment, the global ocean economy is currently rather significant. According to OECD, the contribution of the ocean economy in 2010 was USD 1.5 trillion,²² or, in other words, about 2.5% of GVA. Although offshore oil and gas account for a third of the importance of sea-based industries, the fact is that the largest employer is still fisheries, with more than a third of the total thirty one million jobs in the marine economy. What does this mean in practice? It means that the two most relevant economic activities in the economy of the sea, one in terms of total added value and the other in terms of employment, are two extractive industries, fossil energies and living resources, respectively.

A sustainable economy, blue or otherwise, should bring social and economic benefits to current and future generations—and this is exactly the challenge! It is a difficult balance between choices and planning. *Blue Growth* must go hand in hand with sustainable and precautionary development. *Blue Growth* is therefore an ungrateful term. I prefer *Blue Development* or *Blue Initiative*. In the current context, limits must be placed on growth. The Club of Rome said it fifty years ago: growth has limits.²³ What we need is sustainability and sufficiency. Unfortunately, *growth* is still the word we use most when we talk about the future of the economy.

Any approach to the sea economy is incomplete unless it also takes into account the non-quantifiable aspects of non-market goods and services. This is often overlooked. In other words, the economy of the sea must be defined as the sum of

²² OECD, *The Ocean Economy in 2030*.

²³ Donella H. Meadows and Club of Rome, eds., *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (New York: Universe Books, 1972), 205.

the economic activities of ocean-based industries and the non-monetary products and services of marine ecosystems. These ecosystem services include atmospheric and marine carbon dioxide regulation, oxygenation, hydrothermal convection cycle, the hydrological cycling, coastal protection, and marine biodiversity. This is where the *Blue Economy* really comes into play. Because the limits of exploitation were not defined, the twentieth century became the century of *the tragedy of the commons*. Human beings plundered the seas. The *Mare Liberum* had become the *Mare Crisium*, a sea of crisis.

As Davor Vidas, who to me is one of today's most lucid experts on the law of the sea, said: "[...] the global need now is not primarily freedom of, but responsibility for the seas."²⁴ We face new questions regarding the actual existence of "challenges for the Law of the Sea today."²⁵

Indeed, for forty years now, we have had strong international law governing the activities of the world's nations at sea. The international law of the sea was codified in UNCLOS. It was a significant step beyond the piecemeal laws created and convened during the twentieth century. In my view, it is a monumental law. When UNCLOS was created, it was visionary, but it did not adequately—if not clearly—address some of the problems that are already underway. Some ongoing processes include the collapse of biological resources, ocean acidification, ocean deoxygenation, biodiversity loss, exotic species, rising temperatures, heat waves, and melting polar ice. They were not clearly or comprehensively addressed in the Convention.²⁶

D. Blue Economy in the National Ocean Strategy 2021-2030

The sea is unanimously recognized as a development vector with very high potential for Portugal. This vision is shared in the different national strategies for

²⁴ Davor Vidas et al., "International Law for the Anthropocene? Shifting Perspectives in Regulation of the Oceans, Environment and Genetic Resources," *Anthropocene* 9 (March 2015): 6.

²⁵ Marta Chantal da Cunha Machado Ribeiro, Fernando Loureiro Bastos, and Tore Henriksen, eds., *Global Challenges and the Law of the Sea* (International Association of the Law of the Sea, Cham, Switzerland: Springer, 2020).

²⁶ Davor Vidas, ed., "2. The Development Of The Law Of The Sea Since The Adoption Of The UN Convention On The Law Of The Sea: Achievements And Challenges For The Future," in *Law, Technology and Science for Oceans in Globalisation* (Brill | Nijhoff, 2010), 41–58, https://brill.com/view/book/edcoll/9789004185814/Bej.9789004180406.i-610_003.xml.

the sea that Portugal has developed since 2004, culminating in the most recent National Ocean Strategy 2021-2030.²⁷

The reflection that led to this strategic document occurred at a time marked by the Covid-19 pandemic. During this time, which forced us to make tremendous adjustments in our daily lives, it became clear how dependent we are on the natural environment and the attitudes of others. Still in the grip of the pandemic we were confronted with a new plight. We are witnessing something that was unthinkable a year ago—the Russian regime’s violent invasion of Ukraine has caused a humanitarian emergency in Eastern Europe that many of us have never experienced and never thought we would witness. A worsening economic crisis—marked by energy dependence—shows us that energy decisions and reforms are too far behind and that Central and Eastern Europe are mainly dependent on fossil fuels. It also shows us that investments that should have been made more consistently in renewables energies have been postponed while investment was made in Nord Stream 2. Moreover, the phenomenon of climate emergency—threatening human security and sustainable development—remains a pressing, dramatic reality. We live in challenging times with the combination of all these and other threats. We live in times when the courage to change is imperative.

The Ocean is no stranger to the need for change and action, as the health of the Ocean influences our climate system and the sustainability of the marine environment. Thus, the current and future challenges are significant and growing, and citizens do not always perceive the threats to the Ocean. For many, the Ocean continues to be that strange, opaque and invisible system representing more dangers than goods. The delay in citizens’ emotional and rational connection to the Ocean is one of the factors responsible for the lack of political action to protect and manage the waters of the Ocean. Suffice it to say that the ocean has been burning for a long time, but as this fire does not have the dramatic, open-air exuberance of forest fires, it remains invisible to society’s perception. It has thus been left out of public policy priorities for too long.

This reflection is the result of my career as a former governor responsible for maritime affairs in Portugal, and also of the political experience I had in the European Parliament in 2014, which made me realize that the maritime space is

²⁷ República Portuguesa, “National Ocean Strategy 2021-2030,” 2021, https://www.dgpm.mm.gov.pt/_files/ugd/eb00d2_b2cf9034fcc84867be8d08d69435c3bc.pdf.

close to the hearts and the wise of few and that this needs to change.²⁸ A Europe that increasingly looks to the East has neglected the energy transition that the Atlantic coastal areas and the adjacent seas can offer.

The vision of the National Ocean Strategy 2021-2030 is based on three key pillars. *First*, promoting a sustainable blue economy. *Second*, doing so within the context of a healthy ocean. *Third*, ensuring that economic recovery and ocean protection are based on the best available scientific knowledge. It is fundamental to continue strengthening Portugal's geopolitical and geostrategic position in the international context, where the future of the ocean and the planet is increasingly being decided. In this global context, there are also more and more business opportunities for the various sectors of the blue economy, whose development and subsequent job creation is an obvious priority in a decade that begins with an economic crisis. In this context, I must mention three aspects that I consider fundamental and that I do not always see recognized.

First, the importance of the size of the economy of the sea in Portugal.²⁹ It ranks third among the most important sectors of the Portuguese economy—after education and health, which are sectors with high public investment and whose production is not mainly commercial. Moreover, the economy of the sea has had an average annual GVA growth of about 8.7% in recent years, well above that of the national economy—with a GVA of 1.9%. *Second*, according to AICEP, fish is at the top of exported food products, where it accounted for 16% of exports in 2019, followed by wine with 12%, fruit with 11% and olive oil with 8%.³⁰ *Finally*, and perhaps the most important aspect at this point, I recall the resilience of the Portuguese maritime economy in the period following the previous financial crisis—that of 2008—both in terms of revenues and employment. In 2010-2013, sea-related economic activities performed more favorably than the national average, as reflected in the performance of leading indicators. Cumulatively, the GVA associated with such activities grew by

²⁸ This does not apply necessarily to Portugal and a few other European Union Member States.

²⁹ Instituto Nacional de Estatística, “Economia do mar mais dinâmica do que a economia nacional no triénio 2016-2018,” Destaque. Informação à Comunicação Social (Instituto Nacional de Estatística, November 16, 2020), 2016–18, https://www.inec.pt/sites/default/files/2022-08/16Conta-Sat.-Mar_2016_2018.pdf.

³⁰ aicep Portugal Global, “Exportações Portuguesas. Resiliência e Confiança para Entrentar o Futuro” (aicep Portugal Global, September 2020), 13, <https://www.portugalglobal.pt/PT/RevistaPortugalglobal/2020/Documents/revista-134-setembro.pdf>.

2.1%, while the national GVA decreased by 5.4%. Employment in the sectors of the economy of the sea decreased by 3.4% during this period, while national employment decreased by 10%. However, if we analyze the ranking of the various components that make up the *economy of the sea* in Portugal, tourism represents about 75%. Without devaluing this sector, we must recognize that progress has to be distinct and differentiated. The national satellite account of the Sea Economy is based on indicators for all economic activities directly or indirectly related to the sea. It does not take into consideration the standards of the Blue Economy and, thus, of sustainability. However, the National Ocean Strategy 2021-2030 commits to develop Experimental Accounts for the Marine Environment and Ecosystem Services.

In revitalizing our economy, we must strive for a paradigm shift that should also be seen as an opportunity. Moving from an economy of the sea in the broadest sense to a *Blue Economy* with an understanding of sustainability and the goal of decarbonization. It is important to decarbonize the economy, develop cleaner production processes and make the economy more circular, increase its efficiency in using resources and energy, and ensure sustainable use of natural resources. In addition to the need for a paradigm shift—the urgency of which became clear several years ago—the crisis triggered by the Covid-19 pandemic and the war in Ukraine has highlighted the need for Western countries like Portugal to rethink their economic policies to regain more autonomy and productive capacity in strategic sectors.

In this decade, we will see an acceleration of digital and environmental transformation and a new European re-industrialization. These trends—identified in the National Ocean Strategy 2021-2030—offer Portuguese companies opportunities for growth and internationalization. The transformation of the marine economy into a sustainable Blue Economy should also ensure the development of an outwardly open and highly export-oriented economy to take full advantage of the new and challenging context in which we live.

E. Conclusion

The Ocean and seas are major sources of water, food, jobs, businesses, and income. Still, they are also part of the hydrological cycle and the engine of the carbon cycle that influences global weather.

They contribute significantly to the economic wealth of many nations. As mentioned above, they rank seventh in the world when comparing the GDPs of countries around the world. A small number of transnational corporations dominate. Among the Ocean TOP 100, forty-seven are in the offshore oil and gas business, followed by shipbuilding and repair, and container shipping. One company on renewable energies—offshore wind—ranks fifty-seventh.³¹

As we prioritize responsible and sustainable business models, foster positive impact innovation, and focus on developing solutions to decarbonize the economies, urgent change is needed. We will operate with the last margin of time we have left! This is our opportunity to strengthen and balance nature and business development on a cooperative path, while investing in decarbonization, energy transition, sustainable mobility, enhancing natural capital and finding an increasingly circular economy.

The *High-Level Panel for Sustainable Ocean Economy*³²—involving the leaders of fourteen countries, including Portugal—presented a comprehensive approach to the sustainable management of 100% of the ocean, including a large set of sectorial strategic proposals for *transforming*³³ economic, social, financial, industrial and productive approaches—a synthesis of 14 *blue papers*³⁴—in alignment with the 2030 Agenda for Sustainable Development of the United Nations.³⁵

³¹ J. Virdin et al., “The Ocean 100: Transnational Corporations in the Ocean Economy,” *Science Advances* 7, No. 3 (January 15, 2021).

³² High Level Panel for a Sustainable Ocean Economy, “High Level Panel for a Sustainable Ocean Economy,” accessed December 23, 2022, <https://oceanpanel.org/>.

³³ High Level Panel for a Sustainable Ocean Economy, “Transformations for a Sustainable Ocean Economy. A Vision for Protection, Production and Prosperity” (oceanpanel.org, 2022), 24, <https://oceanpanel.org/wp-content/uploads/2022/06/transformations-sustainable-ocean-economy-eng.pdf>.

³⁴ High Level Panel for a Sustainable Ocean Economy, “Publications,” <https://oceanpanel.org/>, accessed December 23, 2022, <https://oceanpanel.org/publications>.

³⁵ United Nations, “Transforming Our World: The 2030 Agenda for Sustainable Development,” United Nations, accessed December 23, 2022, <https://sdgs.un.org/2030agenda>.

As an archipelagic country on the Atlantic Ocean with approximately four million square kilometers of territory to manage, Portugal faced the great challenge of sustainable ocean planning very early on. Our recently adopted National Ocean Strategy vigorously outlines ten strategic goals for the decade and thirteen priority intervention areas aligned with the United Nations Agenda for Sustainable Development, in particular SGD 14,³⁶ Horizon Europe's Mission on Healthy Oceans and Seas,³⁷ the Green Deal of the European Union,³⁸ and the United Nations Decades of Ocean Sciences and Ecosystems Restoration.³⁹

³⁶ United Nations, "Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development," 14.

³⁷ European Commission, "Mission Starfish 2030: Restore Our Ocean and Waters," <https://research-and-innovation.ec.europa.eu/>, September 22, 2020, https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/mission-starfish-2030-restore-our-ocean-and-waters_en.

³⁸ European Commission, "A European Green Deal. Striving to Be the First Climate-Neutral Continent," <https://commission.europa.eu/>, accessed December 23, 2022, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.

³⁹ European Commission, "Common Fisheries Policy (CFP)," https://oceans-and-fisheries.ec.europa.eu/policy/common-fisheries-policy-cfp_en, accessed December 26, 2022, https://oceans-and-fisheries.ec.europa.eu/policy/common-fisheries-policy-cfp_en; United Nations, "United Nations Decade on Ecosystem Restoration 2021-2030," accessed December 23, 2022, <https://www.decadeonrestoration.org/>.

CHAPTER 12 |

MARINE MINERAL RESOURCES

Pedro Madureira and Luísa Pinto Ribeiro

A. Introduction

The Convention is one of the major multilateral achievements of the second half of the twentieth century. As stated in its preamble, the Convention aims to establish

[...] a legal order for the seas and oceans which will facilitate international communication and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection, and preservation of the marine environment.

Moreover, the Area and its resources are considered “the common heritage of mankind,”¹ and their exploration and exploitation shall be carried out for its benefit, irrespective of the geographical location of States. The Convention entered into force in 1994, followed by the Agreement relating to the implementation of Part XI of the Convention, which triggered the establishment of the ISA in Kingston, Jamaica. The ISA is the organization through which the States Parties to the Convention—one hundred and sixty-seven Member States and the European Union—organize and control all mineral resources-related activities—exploration and exploitation—in the Area for “the benefit of mankind.”² The ISA also has the mandate to ensure the effective protection of the marine environment from harmful effects that may arise from deep-seabed related activities.³

¹ See, Article 136 of UNCLOS.

² See, Article 140 of UNCLOS.

³ ISA, “About ISA,” <https://www.isa.org.jm>, accessed September 11, 2022, <https://www.isa.org.jm/about-isa>.

The mineral resources that occur in the Area are also likely to occur in the legal continental shelf of coastal States,⁴ which may enclose physiographic domains such as the abyssal plains, seamounts, or mid-ocean ridges. The latter is more commonly enclosed by the continental shelf of oceanic islands.

Currently, there is no exploitation of mineral resources in the deep-sea, either in the Area or in areas under national jurisdiction. However, the pressure created by the need to access critical raw materials is increasing the interest of some industrial and governmental stakeholders in starting this activity in the near future.⁵ This interest is also counterbalanced by the motivation of other stakeholders that have been calling for a global moratorium on deep-sea mining.⁶ In this chapter, we will focus on the current exploration activities for mineral resources in the deep-sea, their potential contribution to the achievement of the sustainable development goals of the United Nations 2030 Agenda, and the work that has been developed by Portugal to gather knowledge on these resources in areas of national jurisdiction.

B. Marine Mineral Resources from The Deep-Sea

Under the Convention, “minerals” are defined as all solid, liquid, or gaseous mineral resources recovered from the Area.⁷ From a geological perspective, the term “mineral” is applied only to natural inorganic solids that have a definite chemical composition and an ordered three dimensional array of ions and molecules in their crystal internal structure.⁸ Most, if not all, liquid or gaseous resources that might be exploited at sea are expected to be found in the geological continental margins within the jurisdiction of coastal States.

⁴ ISA, “Marine Mineral Resources: Scientific and Technological Advances,” ISA Technical Study (Kingston: International Seabed Authority, 2021), https://isa.org.jm/files/files/documents/ISA_Technical_Study-30.pdf.

⁵ International Energy Agency, “The Role of Critical Minerals in Clean Energy Transitions,” World Energy Outlook Special Report (Paris: International Energy Agency, 2022), <https://iea.blob.core.windows.net/assets/ffd2a83b-8c30-4e9d-980a-52b6d9a86fdc/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf>; The Metals Company, “A Battery in a Rock. Polymetallic Nodules Are the Cleanest Path toward Electric Vehicles,” <https://metals.co/>, accessed September 11, 2022, <https://metals.co/nodules/>.

⁶ See, “Momentum for a Moratorium,” accessed November 22, 2022, https://www.savethehighseas.org/moratorium_2022.

⁷ See, Article 133 of UNCLOS.

⁸ See, Donald Peck, “What Is a Mineral?,” *Mindat.Org* (blog), accessed September 11, 2022, https://www.mindat.org/a/what_is_a_mineral.

Deep-sea mineral resources correspond mainly to three different types of natural inorganic solids:⁹ PMN, PMS, and CFC. The type of occurrence of these resources in the deep-sea is summarized below.

PMN are predominantly formed at water depths over 3,500 meters on the sediment-covered abyssal seafloor of the global ocean.¹⁰ They are formed by the precipitation of concentric layers of manganese oxides and iron oxyhydroxides around a central nucleus, directly from ocean water and/or sediment pore water. PMN are deposited on top of soft sediment and form two-dimensional deposits characterized by high tonnages. They may gather a significant number of critical and rare metals through adsorption, co-precipitation, and other surface-chemical processes with the major manganese oxides and iron oxyhydroxides. The economic interest on mineral deposits formed by PMN is focused on nickel, copper, cobalt, and manganese, although molybdenum, titanium, lithium, zirconium, and the rare Earth elements plus yttrium (REY) may also occur in high concentrations.

The formation of PMS deposits in the deep-sea results from high temperature hydrothermal circulation that occurs in all ocean basins along mid-ocean ridge spreading centers, as well as along volcanic arcs and back-arc spreading centers. These deposits may form at water depths between two hundred and 5,000 meters, with deeper-water deposits occurring generally in mid-ocean spreading centers and shallower-water deposits along volcanic arcs.¹¹ High concentrations of copper, zinc, gold, and silver occur in some PMS deposits at all these settings. The tonnages of actively forming deposits are poorly constrained and biased by sampling of chimneys. The difficulty in estimating tonnages largely results from the three-dimensional character of these deposits, which requires drilling for resource assessments.

⁹ ISA, "Marine Mineral Resources: Scientific and Technological Advances."

¹⁰ T. Kuhn et al., "Composition, Formation, and Occurrence of Polymetallic Nodules," in *Deep-Sea Mining*, ed. Rahul Sharma (Cham: Springer International Publishing, 2017), 23–63, http://link.springer.com/10.1007/978-3-319-52557-0_2; James R. Hein et al., "Deep-Ocean Mineral Deposits as a Source of Critical Metals for High- and Green-Technology Applications: Comparison with Land-Based Resources," *Ore Geology Reviews* 51 (June 2013): 1–14.

¹¹ Christopher R. German, Sven Petersen, and Mark D. Hannington, "Hydrothermal Exploration of Mid-Ocean Ridges: Where Might the Largest Sulfide Deposits Be Forming?," *Chemical Geology* 420 (January 2016): 114–26; John W. Jamieson, Mark D. Hannington, and Sven Petersen, "Seafloor Massive Sulfide Resources," in *Encyclopedia of Maritime and Offshore Engineering*, ed. John Carlton, Paul Jukes, and Yoo Sang Choo (Chichester, UK: John Wiley & Sons, Ltd, 2017), 1–10.

CFC are typically found on the flanks and summits of seamounts, ridges, and plateaus where rock is exposed at the seafloor and at water depths ranging from about four hundred to 7,000 meters. The thickest—up to two hundred and sixty millimeters—and most metal-rich crusts occur on old seamounts at depths of about eight hundred to 2,500 meters.¹² In addition to the most abundant metals, cobalt, nickel, and manganese, crusts contain a wide array of rare and critical metals of economic interest, such as tellurium, niobium, REY, and platinum group metals, among others, with applications in emerging and next-generation technologies. However, the variable CFC thickness—up to twenty-five to thirty centimeters—and the sloping topography of the seafloor paved by CFC raise several technological challenges for its efficient exploration and future exploitation.

Since 2001, thirty-one contracts with the ISA for exploration for mineral resources in the Area have entered into force:¹³ (i) nineteen for PMN, with seventeen located in the region between the Clarion and Clipperton fracture zones—northeast Pacific basin; one in the northwest Pacific basin; and another in the central Indian Ocean basin; (ii) seven for PMS, with three in the Atlantic basin and four in the Indian basin; and (iii) five for CFC, with four in the western Pacific basin, and one in the southwest Atlantic basin.

Despite a considerable amount of data and scientific knowledge gathered on deep-sea mineral resources in the last two decades, most of the deep-sea area remains largely unexplored, and new discoveries can be expected. One example is given by the relatively recent discovery of REY and scandium-rich muds in the Pacific basin that have been the focus of studies developed by Japanese researchers, contributing to the evaluation of their potential as a mineral resource.¹⁴ Scandium is a rare metal that is in great demand to amalgamate with aluminum to make light and fuel-efficient aircrafts, and in the marine environment significant contents have also been found in CFC from the Arctic Ocean.¹⁵

¹² See, Hein et al., “Deep-Ocean Mineral Deposits as a Source of Critical Metals for High- and Green-Technology Applications.”

¹³ ISA Assembly 27/A/2, *Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea*, ISBA/27/A/2 (May 24, 2022), available at undocs.org/en/ISBA/27/A/2.

¹⁴ See, Yasuhiro Kato et al., “Deep-Sea Mud in the Pacific Ocean as a Potential Resource for Rare-Earth Elements,” *Nature Geoscience* 4, No. 8 (August 2011): 535–39; BBC, “Japan Finds Rare Earths in Pacific Seabed,” *BBC.Com*, July 4, 2011, Online Edition edition.

¹⁵ James R. Hein et al., “Arctic Deep Water Ferromanganese-Oxide Deposits Reflect the Unique Characteristics of the Arctic Ocean,” *Geochemistry, Geophysics, Geosystems* 18, No. 11 (November 2017): 3771–3800.

Several coastal States have already issued legislative acts for mineral-related activities in the deep-sea in areas of national jurisdiction. In Norway, for example, the Seabed Minerals Act,¹⁶ which entered into force on July 1, 2019, and was amended in 2021 to cover all areas of the Norwegian continental shelf,¹⁷ aims to facilitate activities related to the exploration for and exploitation of marine mineral resources on the continental shelf. The Seabed Minerals Act stipulates that before a license to conduct mineral-related activities in a specific area can be granted to a commercial player, that area must be subject to an opening process by the government based on an impact assessment. The impact assessment must highlight the effects that mineral-related activities may have on the environment, as well as the expected impact on business, economic, and social factors.¹⁸ This impact assessment will form the basis upon which a decision will be made. A first decision on these activities is expected during the second quarter of 2023. In the Pacific region, the Cook Islands government also approved the Seabed Minerals Act in 2009.¹⁹ It established the Seabed Minerals Authority in order to manage mineral-related activities within areas of national jurisdiction. The Government of the Cook Islands invited tenders for exploration licenses in 2015, but no applications were submitted. In 2019, a new Seabed Minerals Act superseded the one from 2009,²⁰ requiring all licenses to be made “in the national interest,” which includes the need to consider environmental and social risks.²¹ The Act was later amended in June 2020 to provide greater certainty and predictability concerning the applications procedure and to expand and clarify the

¹⁶ *Seabed Minerals Act* (2019). Act relating to mineral activities on the Continental Shelf (LOV-2019-03-22-7). Lovdata. <https://lovdata.no/dokument/LTI/lov/2019-03-22-7>. See, for the English version of the *Seabed Minerals Act* (2019), <https://www.npd.no/en/regulations/acts/act-relating-to-mineral-activities-on-the-continental-shelf-seabed-minerals-act/> (accessed on November 30, 2022).

¹⁷ *Seabed Minerals Act* (2021). Act relating to mineral activities on the Continental Shelf. (ACT-2021-06-18-89) Lovdata. https://lovdata.no/dokument/NL/lov/2019-03-22-7#KAPITTEL_7.

¹⁸ Henrik Bjørnebye et al., “OCEAN | Impact Assessment Program for Mineral Activities on the Norwegian Continental Shelf,” *Bahr.No* (blog), September 20, 2021, <https://bahr.no/newsletter/ocean-impact-assessment-program-for-mineral-activities-on-the-norwegian-continental-shelf>.

¹⁹ *Seabed Minerals Act* (2009). Act No. 16 for the management of the seabed minerals of the Cook Islands and for related purposes and matters incidental thereto. Parliament of the Cook Islands. <https://parliamentci.wpenginepowered.com/wp-content/uploads/2022/01/Seabed-Minerals-No.-16.pdf>.

²⁰ *Seabed Minerals Act* (2019). Act No. 05 to establish an effective and responsible regulatory scheme for the management of the seabed minerals of the Cook Islands. Parliament of the Cook Islands. <https://parliamentci.wpenginepowered.com/wp-content/uploads/2020/02/Seabed-Minerals-Act-2019-No.-5-1.pdf>.

²¹ Anthony Kung et al., “Governing Deep Sea Mining in the Face of Uncertainty,” *Journal of Environmental Management* 279 (February 2021): 111593.

obligations of title holders under the Act.²² The Government of the Cook Islands granted the first seabed minerals exploration licenses on February 23, 2022, to three Cook Islands incorporated companies. An exploration license is issued for five years, granting permission to undertake research activities on the seabed, focused on seafloor mapping, nodule sampling, and baseline characterization.²³

C. United Nations Sustainable Development Goals

The General Assembly adopted in 2015 a set of seventeen SDGs that constitute the core of the United Nations 2030 Agenda for Sustainable Development.²⁴ These goals are considered an urgent call for action by all countries—developed and developing—in a global partnership, with the aim of ending poverty and other deprivations. This represents a major challenge given the current increase in human population—reaching eight billion by the end of 2022—and the need to build prosperous societies that rely on a healthy environment to provide food and resources, safe drinking water, and clean air for their citizens.²⁵ The SDGs aim to ensure availability and sustainable management of water and sanitation (Goal 6), access to affordable, reliable, sustainable, and modern energy for all (Goal 7), and to make cities and human settlements inclusive, safe, resilient, and sustainable (Goal 11). Goal 13 considers the need to take urgent action to combat climate change and its impacts, which are already being felt worldwide. The achievement of these goals requires access to metals and mineral resources on a large scale.²⁶

²² *Seabed Minerals Act* (2020). Act No. 18 (a) to amend the Seabed Minerals Act 2019 to (i) provide greater certainty and predictability in applications and other processes under the Act; and (ii) expand and clarify the obligations on title holders under the Act; and (iii) make minor and technical amendments to the Act; and (b) to make a minor amendment to a change made by the Act to the Environment Act 2003. Parliament of the Cook Islands. <https://parliamentci.wpenginepowered.com/wp-content/uploads/2020/07/Seabed-Minerals-Amdt-Act-2020-No.-18.pdf>.

²³ Seabed Mineral Authority of Cook Islands, “Factsheet on the Licensing Process for Exploration,” <https://static1.squarespace.com>, accessed September 11, 2022, <https://static1.squarespace.com/static/5cca30fab2cf793ec6d94096/t/5f8f8122079c8d584373df25/1603240226603/201020+SBMA+Licensing+process.pdf>.

²⁴ General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/RES/70/01 (October 21, 2015), available at undocs.org/en/A/RES/70/1.

²⁵ UNESCO, “Education for Sustainable Development,” <https://www.unesco.org>, accessed September 11, 2022, <https://www.unesco.org/en/education/sustainable-development>.

²⁶ International Energy Agency, “The Role of Critical Minerals in Clean Energy Transitions.”

Mining activities on land will certainly constitute one of the main sources for metals in the near future. The question is how to ensure that these activities will not jeopardize the protection of terrestrial ecosystems, particularly forests (Goal 15). The same question applies to the protection of the deep-sea and its ecosystems and biodiversity (Goal 14). However, unlike land-based mining, there is the opportunity with deep seabed mining to regulate this new industrial activity prior to the commencement of this activity and to establish an informed decision-making process supported by the best scientific knowledge and the appropriate precautionary measures. Concerning the impacts of deep-sea mining on the marine environment, it is likely that collector devices could create a sediment plume that may extend beyond the borders of the mining area, affecting filter-feeding organisms and their related ecosystems. The plume scale and its dynamics constitute one of the major issues that have been addressed by several scientific projects and publications. Notwithstanding the impacts on the marine environment that still require more knowledge and a better understanding, it is also worth mentioning some aspects that may favor the future exploitation of mineral resources from the deep-sea considering the current SDGs: (i) conversely to land mineral deposits, known mineral resources in the deep-sea do not have overburden, which means that there is no rock to be removed in order to access the ore, and potentially there is no significant waste along the value chain; (ii) social issues, such as child labor or gender inequality, are more likely to persist in land-based mining; and (iii) mining activities for mineral resources in the Area will be monitored by the international community through the ISA, while mining activities on land are under control of a particular State's jurisdiction.

D. Marine Mineral Resources on the Portuguese Continental Shelf

The Convention establishes a legal regime for the ocean with due regard for the sovereignty of all States, which includes maritime areas within the jurisdiction of the coastal States and the areas located beyond national jurisdiction. Maritime areas within the jurisdiction of coastal States include (i) the territorial sea established up to a limit not exceeding twelve nautical miles measured from the baselines, which basically represent the low-water line along the coast; (ii) the EEZ beyond and adjacent to the territorial sea and not extending beyond

two hundred nautical miles from the baselines from which the breadth of the territorial sea is measured; (iii) the continental shelf that may extend beyond two hundred nautical miles, being its outer limits established according to Article 76 of the Convention. While the territorial sea encloses seafloor areas that usually share the same geological nature as the landmass, the EEZ and the continental shelf may enclose seafloor areas distant from the landmass that share geological and morphological characteristics similar to those found in the Area. Therefore, the mineral resources of the Area—PMN, PMS, and CFC—may also occur in areas under the jurisdiction of a coastal State.

The rights of the coastal State over the continental shelf are ruled in Article 77 of the Convention, which states that

[t]he coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources [...] that [...] no one may undertake these activities without the express consent of the coastal State. The rights [...] do not depend on occupation, effective or notional, or on any express proclamation.

Nonetheless, if a State decides or consents to exploit the non-living resources in the seafloor areas of the continental shelf beyond two hundred nautical miles, it must make payments or contributions in kind that it will derive from such activity through the ISA.²⁷ The latter must then proceed to distribute them among States Parties to the Convention based on equitable sharing criteria, considering the interests and needs of developing States—particularly the least developed and landlocked States.

Portugal ratified the Convention on November 3, 1997, thus binding itself to its rights and obligations. One of the main national goals by that time was the completion of the Portuguese submission regarding the delineation of the outer limits of the continental shelf beyond two hundred nautical miles.²⁸ For this purpose, following an initial desktop study, in 2005 the Portuguese government decided to create the EMEPC²⁹ to prepare and support its submission to the United Nations and to the CLCS.³⁰

²⁷ See, Article 82 of UNCLOS.

²⁸ See, Article 76 of UNCLOS.

²⁹ Council of Ministers resolution No. 9/2005, of January 17, 2005, Republic Diary No. 9/2005, Series 1 of 2005-01-17, pp. 283–284.

³⁰ See, United Nations, “Commission on the Limits of the Continental Shelf (CLCS) Outer Limits of the Continental Shelf beyond 200 Nautical Miles from the Baselines: Submissions to the Commission: Submission by the Portuguese Republic,” August 22, 2017, https://www.un.org/depts/los/clcs_new/submissions_files/submission_prt_44_2009.htm.

The Portuguese submission was originally delivered in 2009, but it was later revisited, corrected, and updated in 2017. The updated version included new data obtained during oceanographic campaigns promoted by the EMEPC and from peer-reviewed scientific publications, the recommendations issued by the CLCS to other coastal States. Currently, it is under evaluation by the members of the subcommission designated within the CLCS since August 2017.

The area of the continental shelf declared by Portugal in its submission considers the natural prolongation of its three landmasses—Portugal mainland, the Azores Archipelago, and the Madeira Archipelago. Upon the application of the criteria provided for in Article 76 of the Convention, these landmasses merge into an area enclosed by a single outer limit of the continental shelf (Figure 1).

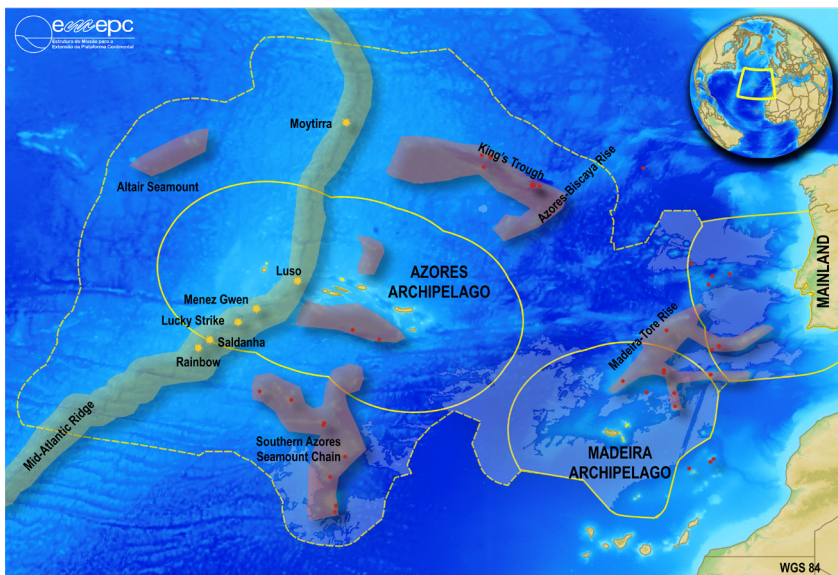


Figure 1. Map showing the seafloor areas within Portuguese jurisdiction, and the areas with the most favorable locations for the occurrence of deep-sea mineral resources. The yellow lines outline the three sub-areas of the Portuguese EEZ: mainland, Madeira, and the Azores archipelagos; the dashed yellow line is the outer limit of the Portuguese continental shelf proposed by Portugal and under evaluation by the Commission on the Limits of the Continental Shelf; the yellow/greenish shadow marks a buffer along the Mid-Atlantic Ridge where PMS form, and the yellow stars show the location of the known active hydrothermal fields; the red/grayish shaded areas are the most favorable locations for CFC occurrence, and the red stars are sites where crusts have been sampled; the light blue shaded areas are the most favorable locations for PMN occurrence.

Since its inception, the EMEPC has sponsored and organized oceanographic campaigns to collect new data not only in key locations to carry out its mission but also to support multidisciplinary deep-sea research programs led by national and international scientific teams, bringing new knowledge to several locations of the Portuguese continental shelf. The success of this strategy also relied on the 2008 acquisition of the Luso ROV, rated for 6,000 meters of water depth, and the training of a dedicated ROV pilot team. The Luso ROV is equipped with an HD camera to provide high-quality footage, a camera for still images, multiple sensors (CTD, CO₂, CH₄), suction sampler, sampling boxes and individual chambers, and two robotic arms capable of collecting geological and biological samples.

The oceanographic cruises led by EMEPC were used to map some of the main geomorphological features of the Portuguese continental shelf and to characterize distinct geological and biological environments. The work carried out onboard also provided the opportunity to sample and discover new occurrences of marine mineral deposits, such as CFC or PMS, which provided data to support further scientific work.³¹ One of the major geomorphological features within the Portuguese continental shelf is the Madeira-Tore Rise. This submarine topographic high extends more than 750 kilometers between Portugal Mainland and Madeira Archipelago and is topped by several seamounts coated with CFC. The preliminary study of these crusts—with an average thickness of seven centimeters³²—showed results that were comparable to CFC found in other regions, such as in the Pacific basin. Other areas where the occurrence of CFC has been documented are the seamounts located immediately south to the Azores Archipelago,³³ and the seamounts forming the Southern Azores Seamount Chain,³⁴ *i.e.*, the Great Meteor and Plato seamounts, where crust thickness (Figure 2) and concentrations of cobalt, nickel, and other metals

³¹ See, P. Conceição et al., “ROV LUSO: An Important Tool to Evaluate Mineral Resources in the West Iberian Margin” (VII Simpósio sobre a Margem Ibérica Atlântica, Lisboa: Faculdade de Ciências da Universidade de Lisboa, 2012); Ana Rita Claro Pereira, “Estudo geoquímico e mineralógico das crostas de Fe-Mn no Atlântico Norte” (Mestrado, Lisboa, Faculdade de Ciências da Universidade de Lisboa, 2019), <http://hdl.handle.net/10451/40270>.

³² Susana Bolhão Muiños et al., “Deep-Sea Fe-Mn Crusts from the Northeast Atlantic Ocean: Composition and Resource Considerations,” *Marine Georesources & Geotechnology* 31, No. 1 (January 2013): 40–70.

³³ Muiños et al.

³⁴ Pereira, “Estudo geoquímico e mineralógico das crostas de Fe-Mn no Atlântico Norte.”

suggest that these locations may be targeted for future exploration activities. In fact, the occurrence of thin CFC coating the surface of seamounts seems to be widespread within the Portuguese continental shelf, as observed in samples or video footage collected during oceanographic campaigns (Figure 2).



Figure 2. (Left) A sample collected in the Southern Azores Seamount Chain topped with CFC. (Right) Basaltic sample dredged at the flank of the Great Meteor Seamount in 2007. This sample is coated with CFC (less than one centimeter thick) and can be seen at Centro Ciência Viva de Estremoz.³⁵

The Mid-Atlantic Ridge is the longest seafloor topographic feature of the Atlantic basin and is the location where processes that may form PMS deposits occur. Within the Portuguese continental shelf, several locations with hydrothermal activity have been discovered.³⁶ Four of these are located to the south of the Azores Archipelago (Figure 1): the Lucky Strike, the first to be discovered in 1993,³⁷ followed by the Menez Gwen,³⁸ the Rainbow,³⁹ and the Saldanha hydrothermal fields.⁴⁰

³⁵ EMEPC, “Galeria de Imagens e Vídeos. Recursos Não-Vivos,” <https://www.emepc.pt>, accessed April 12, 2023, <https://www.emepc.pt/galeria-recursos-nao-vivos?pgid=jea296d0-cdc67eab-1303-4732-9702-fe7e7c4c45a7>.

³⁶ Ágata Alveirinho Dias et al., “Variability of the Hydrothermal Fields within the Portuguese Seafloor (MAR)” (Goldschmidt Conference. Hawai’i 2022, Hawai’i, 2022), <https://conf.goldschmidt.info/goldschmidt/2022/meetingapp.cgi/Paper/11686>.

³⁷ C Langmuir et al., “Lucky Strike – A Newly Discovered Hydrothermal Site on the Azores Platform,” *Ridge Events*, 1993.

³⁸ Yves Fouquet et al., “A Detailed Study of the Lucky Strike Hydrothermal Site and Discovery of a New Hydrothermal Site: Menez Gwen; Preliminary Results of the DIV AI Cruise,” *InterRidge News*, 1994.

³⁹ Yves Fouquet et al., “FLORES Diving Cruise with the Nautile near the Azores – First Dives on the Rainbow Field: Hydrothermal Seawater/Mantle Interaction,” *InterRidge News* 7, No. 1 (1998): 24–28.

⁴⁰ Fernando Barriga et al., “Discovery of the Saldanha Hydrothermal Field on the FAMOUS Segment of the M.A.R. (36° 30’ N),” *Eos Transactions American Geophysical Union* 79 (January 1, 1998): 67.

The Lucky Strike (Figure 3a) and the Rainbow hydrothermal fields occur at depths between 1.000 and 2.300 m and are characterized by the venting of fluids with temperatures sometimes higher than three hundred degrees celsius precipitating PMS. Menez Gwen and Saldanha also exhibit hydrothermal fluid venting, but with different characteristics and mineral precipitates. The Moytirra Vent Field was discovered in 2011 (Figure 3b) and is the only known high temperature hydrothermal site (with PMS) located to the north of the Azores Archipelago.⁴¹ A new (low temperature) hydrothermal vent site dubbed as Luso (Figure 3c below) was recently discovered at the Azores latitude during the *Fundação Oceano Azul* campaign with the Luso ROV in 2018. The site is located on the flanks of the *Gigante* seamount at approximately six hundred meters depth and does not show PMS deposition in its vicinity.

⁴¹ A. J. Wheeler et al., “Moytirra: Discovery of the First Known Deep-Sea Hydrothermal Vent Field on the Slow-Spreading Mid-Atlantic Ridge North of the Azores: Moytirra Deep-Sea Hydrothermal Vent,” *Geochemistry, Geophysics, Geosystems* 14, No. 10 (October 2013): 4170–84; Luis Somoza et al., “Multidisciplinary Scientific Cruise to the Northern Mid-Atlantic Ridge and Azores Archipelago,” *Frontiers in Marine Science* 7 (November 4, 2020): 568035.

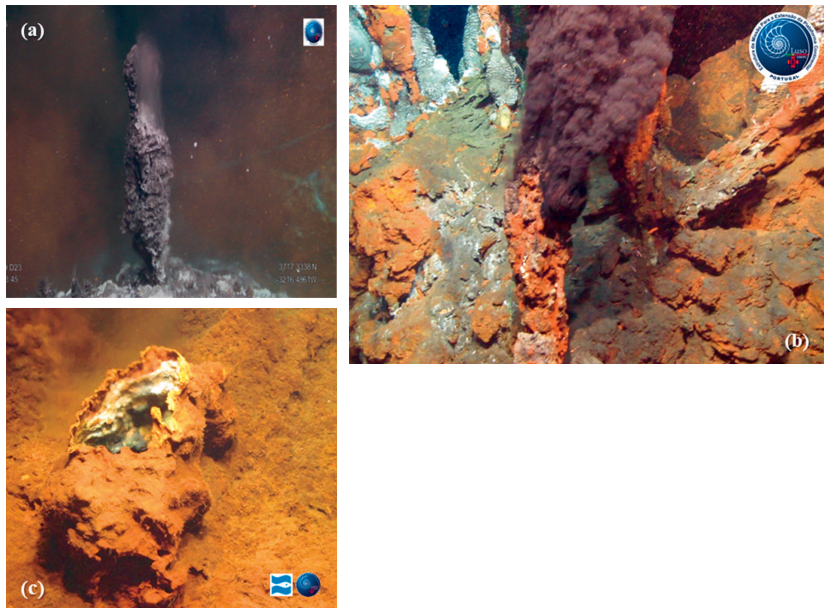


Figure 3. Hydrothermal vent sites visited by the Luso ROV include: (a) Lucky Strike, visited in 2009 during the EMEPC/LUSO/AÇORES/2009 cruise;⁴² (b) Moytirra, visited in 2019 during the EXPLOSEA2 cruise;⁴³ and (c) Luso vent field, discovered in 2018 during the Fundação Oceano Azul campaign.⁴⁴

PMN—usually found at depths greater than 4,000 meters—have been reported at two locations within the Portuguese continental shelf. However, the seafloor of abyssal plains, such as the Iberia, Tagus, or Horseshoe, has not yet been explored for this purpose. The areas depicted in Figure 1 by a light blue shade correspond to the most favorable locations, *i.e.*, flat areas at more than 4,000 meters depth, where PMN may be found in the future. *Finally*, it is worth mentioning that the assessment of the marine mineral resources that may exist in areas under Portuguese jurisdiction is yet to be made. This requires a greater presence—spatial and temporal—at sea and the development and use of new

⁴² EMEPC, “Galeria de Imagens e Vídeos. Recursos Não-Vivos.”

⁴³ Luis Somoza et al., “High-Resolution Multibeam Bathymetry of the Northern Mid-Atlantic Ridge at 45–46° N: The Moytirra Hydrothermal Field,” *Journal of Maps* 17, No. 2 (December 1, 2021): 184–96.

⁴⁴ Oceano Azul Foundation, <https://www.facebook.com/oceanoazulfoundation>, accessed April 12, 2023, <https://www.facebook.com/oceanoazulfoundation/posts/new-hydrothermal-field-discovered-during-the-oceano-azul-expedition-in-the-azore/645536309148544/>.

technologies in addition to the existing operational capacity at the national level. The collection of baseline environmental data is also critical for compliance with the Portuguese policy on marine protection,⁴⁵ and will support the framework for future sustainable exploitation of marine mineral resources—if any.

E. Conclusion

Soon, deep-sea mineral resources may become an alternative source of metals that are essential to address most of the current societal challenges. The development of modern societies has been supported by exploiting metals from land mines, but the growth of the human population and the increasing demands of current generations have brought deep-sea mining onto the agenda. Despite the discovery of the first hydrothermal fields in the nineties of the twentieth century, a detailed resource assessment on PMS—or any other marine mineral resource—is still lacking. The latter will only be feasible with the acquisition of data and the collection of geological samples from the subsurface. This will require technological capability and innovation and may constitute an opportunity to develop a national program focused on the study of the deep sea based on strategic and effective partnerships—public and private—and supported by the already existent scientific and technical expertise.

⁴⁵ XXI Governo - República Portuguesa, “Portugal quer criar 30% de áreas marinhas protegidas até 2030,” June 22, 2018, <https://www.portugal.gov.pt/pt/gc21/comunicacao/noticia?i=portugal-quer-criar-30-de-a-reas-marinhas-protegidas-ate-2030>.

CHAPTER 13 |

EXPLORING AND EXPLOITING MINERAL RESOURCES IN THE SEA: THE RELEVANCE OF THE PORTUGUESE NETWORK OF INTERNATIONAL INVESTMENT AGREEMENTS

João Gil Antunes

A. Introduction

Understanding the relationship between the exploration for and exploitation of mineral resources in the sea, the legal framework governing the protection and promotion of foreign investment, the law of the sea, and other principles and norms of domestic and international laws is essential if sovereign States are to develop sound and comprehensive public policies regarding such economic activities. In particular, such policies must have in mind the obligations of States to foreign investors under international and domestic laws. At the same time, there are a multitude of ocean protection and conservation issues whose importance cannot be underestimated or overlooked. Accordingly, the nature and scope of public measures pursued by Portuguese authorities cannot be designed without considering the entirety of the legal framework and the legitimate expectations of foreign investors. Otherwise, there is a risk of breaching the rights of the latter, which would trigger the international responsibility of Portugal and, eventually, its subsequent obligation to pay large sums as compensation as ordered by international or national courts.¹

¹ The most important international instruments on international arbitration state that arbitral awards are binding on the parties and that they have the obligation to abide by such awards and comply with their terms [see, for example, Article 53(1) of the ICSID Convention; Article 34(2) of the UNCITRAL Arbitration Rules; Article 34(2) of the 2012 PCA Arbitration Rules]. In addition, Portugal is among the one-hundred and seventy States that have ratified, accessed, approved, or accepted the New York Convention, Article 1(1) of which states that “[...] [it] shall apply to the recognition and enforcement of arbitral awards made in the territory of a State other than the State where the recognition and enforcement of such awards are sought, and arising out of differences between persons, whether physical or legal.” Article 3 of the New York Convention also takes a *pro-enforcement bias*, stating that there is an international obligation on parties to recognize arbitral awards as binding and to enforce them accordingly. It is widely recognized that investment arbitral awards are commercial within the meaning of the New York Convention. Accordingly, such arbitral awards may be recognized and enforced under the New York Convention unless there are grounds for refusing their recognition and enforcement under Article V.

The debate on the best approach to regulating the exploration for and exploitation of mineral resources in the sea is taking place at national and international levels. At the national level, the National Ocean Strategy 2021-2030 includes a priority intervention area dedicated to the exploitation of non-living marine resources.² In particular, Priority Intervention Area No. 12 highlights the strategic importance of the ocean's non-living resources in (i) achieving the United Nations 2030 Agenda for SDGs;³ (ii) supporting the fight against climate change by contributing to the decarbonization of the economy; and (iii) contributing to major technological developments, including in the blue economy.⁴ However, it further underscores the potential adverse impacts arising from the exploitation of mineral resources in the sea, admitting that “[t]he extraction of marine mineral is legitimately seen with some concern by various sectors of society.”⁵ In addition, it is recognized that the mineral resources in the sea under Portuguese sovereignty have not yet been fully explored and that there are still technological challenges in conducting such activities and exploiting such resources.⁶

In this context, it is certain that the Portuguese authorities did not completely exclude the possibility of exploring and exploiting mineral resources in the sea. However, it is also clear that those legitimate reservations are acknowledged. This is a topical issue because, as mentioned in the previous chapter, there seems to be abundant mineral resources and wealth in these areas. However, there does not seem to be a clear and definitive strategy yet on whether Portugal will support and allow such activities on its territory.⁷

² República Portuguesa, “National Ocean Strategy 2021-2030.”

³ General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/RES/70/1 (October 21, 2015), available at undocs.org/en/A/RES/70/1. See also, United Nations, “Transforming Our World: The 2030 Agenda for Sustainable Development.”

⁴ República Portuguesa, “National Ocean Strategy 2021-2030,” 62–63.

⁵ República Portuguesa, 62.

⁶ República Portuguesa, 63. See also, Tommy Koh, “Reconciling Competing Claims to the Resources and the Uses of the Sea,” in *Building a New Legal Order for the Ocean*, Tommy Koh (Singapore: NUS Press Singapore, 2020), 143.

⁷ Carla Tomás, “Portugal entreabre a porta à mineração do mar profundo,” *Expresso*, July 3, 2022, <https://expresso.pt/sociedade/2022-07-03-Portugal-entreabre-a-porta-a-mineracao-do-mar-profundo-ambientalistas-alertam-para-o-impacto-27d61d52>; Carla Tomás, “Portugal não defende moratória à exploração do mar profundo. ‘Queremos privilegiar o conhecimento dos valores minerais e da biodiversidade,’” *Expresso*, July 1, 2022, <https://expresso.pt/sociedade/2022-07-01-Portugal-nao-defende-moratoria-a-exploracao-do-mar-profundo-Queremos-privilegiar-o-conhecimento-dos-valores-minerais-e-da-biodiversidade-c8251954>; Lusa, “Costa Silva reitera Universidade do Atlântico nos Açores e rejeita mineração do mar,” *Público*, July 6, 2022, <https://www.publico.pt/2022/07/06/azul/noticia/costa-silva-reitera-universidade-atlantico-acores-rejeita-mineracao-mar-2012775>.

Be that as it may, the purpose of this chapter is twofold: It aims to provide an overview of the network of IIAs to which Portugal is internationally bound while emphasizing the exact terms and conditions under which international arbitral tribunals have jurisdiction to settle disputes in connection with deep-sea mining activities in areas under national sovereignty or jurisdiction. Underlying this chapter is the idea that Portuguese authorities must take into account Portugal's international obligations and commitments to foreign investors when developing policies for exploration for and exploitation of mineral resources in the sea. Accordingly, it specifically addresses the scope and main shortcomings of the IIAs currently applicable to Portugal. With this approach, this chapter aims to present the legal landscape on the topic of exploration for and exploitation of mineral resources in the sea from the perspective of international investment law.

B. The Scope of Application of IIAs of Portugal

When designing public policies, the government and other officials must pay attention to whether they affect the rights of foreign investors. Accordingly, it is worthwhile to understand how to navigate the waters of foreign investment protection and promotion and to know the dos and don'ts. The first step toward this goal is to realize that States may grant—and often do so—rights under international law to foreign investors and their investments. It is therefore necessary to determine whether there are international binding instruments in force—including IIAs—that provide substantive and procedural rights to foreign investors and their investments that may be affected in some way by the measure under consideration.

Portugal has signed forty-eight IIAs,⁸ thirty-seven of which are currently in force.⁹ In general, the purpose of the IIAs to which Portugal is a party is to

⁸ In addition to the IIAs in force, Portugal has also signed ten other IIAs with Brazil, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, the Russian Federation, Sao Tome and Principe, Senegal, Vietnam, and Zimbabwe. Furthermore, at the time of writing, Portugal had already deposited its instrument of ratification with the Secretary General of the Council of the European Union with respect to the Agreement on for the termination of Bilateral Investment Treaties between the Member States of the European Union, which terminated the IIAs (including their sunset clauses) concluded between Member States of the European Union other than Austria [see, Articles 2 and 3 of the Agreement for the termination of Bilateral Investment Treaties between the Member States of the European Union]. For this reason, such IIAs are excluded from these figures.

⁹ See, Subsection on International Treaties and Conventions below. In addition, there are important multilateral treaties to which Portugal is also a party that include investment chapters. Perhaps the most relevant of such treaties is Articles 10 to 17 of the Energy Charter Treaty. The legal specifics of the Energy Charter Treaty

promote and protect investments made by investors of the other party in its territory.¹⁰ As a general rule, such IIAs cover the investments made prior to and after their entry into force, provided they are made in accordance with the laws and regulations of Portugal.¹¹ The second step concerns the ability to determine the scope of application of IIAs. As is so often the case in international law, one must be wary of blanket solutions in answering these questions. State practice may vary from one IIA to another, which means that what is true under one IIA may be false with respect to another. Accordingly, it is necessary to take a closer look at the relevant IIAs to find the right legal proposition on this particular point.

Among the key issues associated with the scope of application of IIAs, there are three that are particularly relevant concerning (i) the territorial application of the IIAs; (ii) the *ratione personae* of the IIAs; and (iii) the *ratione materiae* of the IIAs. In addressing these three issues, the following subsections aim to provide a clear and comprehensive picture of the legal framework binding Portugal under the IIAs to which it is a party.

1. The territorial application scope of the IIAs

The territorial application is a relevant feature of any IIA to consider because it defines the geographical delimitation within which investments made by foreign investors are entitled to the substantive and procedural rights provided for in the IIAs. It is one of the most important links to the law of the sea, particularly those sections of UNCLOS governing the delimitation of maritime boundaries over which States have sovereignty or sovereign rights over living and nonliving

are outside the scope of this chapter and are not addressed here. Annex 1 provides a graphic image of the geographic distribution of the IIAs to which Portugal is a party and that are currently in force.

¹⁰ The definition of the object and purpose of a treaty is particularly important in light of Article 31(1) of the VCLT, which identifies the object and purpose of a treaty as fundamental reference points of an interpretive exercise.

¹¹ For most of these IIAs, however, there is a provision excluding from their scope disputes—concerning covered investments—that have arisen before their entry into force. The IIAs that do not provide for such an exception are the IIA with Cape Verde, the IIA with Guinea-Bissau, the IIA with Mozambique, and the IIA with Türkiye. The solution contained in the IIA with Angola leaves room for speculation as to whether it applies to investments made prior to its entry into force. Given the wording of Article 2(1), it appears that such investments are also covered. Otherwise, it would be nonsensical to exclude from its scope “[...] disputes and/or claims regarding facts that occurred before its entry into force” (free translation of: “[...] não se aplicando, contudo, aos diferendos e/ou reclamações que resultem de factos ocorridos antes da sua entrada em vigor”). In addition, the scope of the IIA with Tunisia includes a temporal limitation for investments made before its entry into force.

resources. This is an important step because if there is an investment that meets all the other criteria of the relevant IIA but is made outside its territorial application, then the substantive and procedural protections do not apply to it and its investors.

In most IIAs, the territorial application is determined by the definition of *territory*.¹² In all thirty-seven IIAs to which Portugal is a party, there is a wide variety of formulations for this term. Each of these formulations can be grouped into different categories and subcategories based on whether they include a reference to (i) international law and/or domestic legislation;¹³ (ii) areas over which Portugal has or exercises sovereignty, sovereign rights, or jurisdiction, including (a) the land territory; (b) the territorial sea; (c) the air space above the land territory and/or the territorial sea; (d) the internal waters; (e) the continental shelf;¹⁴ (f) the EEZ; (g) the maritime areas adjacent to the outer limits of the territorial sea, including seabed and subsoil thereof;¹⁵ (h) any other area adjacent to the coast. There are also IIAs that include those areas over which Portugal exercises sovereignty, sovereign rights, or jurisdiction for the purpose of exploring and exploiting the mineral and other nonliving resources of the seabed and subsoil. *Finally*, there are IIAs that do not explicitly define the term *territory*.

The practice of Portugal in defining the territorial application of its IIAs is quite attractive for foreign investors and their investments. In most of such definitions,¹⁶ it does not exclude any part of its land territory or maritime

¹² There are many IIAs that use the term *territory* but do not contain an explicit definition of that term. In this case, arbitral tribunals and courts are called upon to interpret the term and decide whether it includes maritime areas in addition to land territory. To avoid this question, some IIAs use the term *area* instead. The IIAs to which Portugal is a party use the term *territory*, but they generally explicitly define this term. This leaves less room for controversy over its meaning. For consistency with the wording used in the IIAs to which Portugal is a party, I refer to *territory* as including both land territory and maritime areas. See in this respect, Peter Tzeng, "Investment Protection in Disputed Maritime Areas," *Journal of World Investment & Trade* 19, No. 5-6 (2018): 828–59.

¹³ Article 1(4) of the IIA with Egypt refers both to the domestic law of the parties and to international law. However, it does so in a particular way. It defines the term *territory* by reference to domestic law. Only then is reference made to international law, adding that its territorial scope includes the area so defined over which the parties exercise sovereignty or have sovereign rights or jurisdiction.

¹⁴ Although the IIA with Singapore does not explicitly define the term *territory*, it clarifies that the term *investments made in the territory of the other Party* includes investments made in the EEZ or the continental shelf of a State in accordance with UNCLOS [see, fn.1 to Article 1.2(1) of the IIA with Singapore].

¹⁵ Or a similar expression.

¹⁶ The IIA with Peru seems to be an exception since it does not contain an explicit reference to maritime areas and only a reference to the territory of Portugal and the Republic of Peru.

zones over which it has sovereignty or sovereign rights over living or nonliving resources.

It is impossible not to see the link between such definitions and the law of the sea—especially UNCLOS. *First*, a direct reference to international law is apparent in the definition of *territory*.¹⁷ This cross-reference explicitly creates a mental link between IIAs and other international treaties that regulate and establish land and maritime boundaries. Among these treaties, UNCLOS is of central importance, as many of its provisions deal exclusively with the delimitation of maritime boundaries between sovereign States.

Second, in any of those cases in which a definition of the term *territory* is given, reference is made to the areas over which Portugal exercises sovereignty, sovereign rights or jurisdiction. The diversity just mentioned occurs especially in determining the situations in which Portugal exercises sovereignty or jurisdiction or has sovereign rights over living and nonliving natural resources—most of these cases are merely illustrative. In some instances, the categories contain more detailed characteristics. This applies, for example, to the concepts of territorial sea, internal waters, EEZ, and continental shelf.

In this more detailed category, the definition of *territory* includes many legal concepts that are not alien to international law and whose meaning and legal regime are, in fact, developed in UNCLOS. Therefore, the determination of the territorial application of such IIAs implicitly requires the interpretation of their relevant provisions. In particular, it is necessary to determine not only the meaning of each of those concepts but also the rights and obligations of Portugal associated with them. For the purposes of this chapter, government and other officials, as well as foreign investors seeking to invest in Portugal, should pay particular attention to the fact that UNCLOS establishes that:¹⁸

¹⁷ In this regard, however, there is one exception: In the IIA with Peru, the term is defined exclusively by reference to the *political constitutions* of Portugal and the Republic of Peru, that is, there is no express reference to international law. This is an exception to the state practice of Portugal regarding the definition of its territory.

¹⁸ See, Law No. 34/2006, of July 28, which establishes, among other things, the extent of the maritime zones under the sovereignty or jurisdiction of Portugal. See also, for a graphic representation of Portugal's territorial sea, internal waters, contiguous zone, EEZ, and continental shelf, Direção-Geral de Recursos Naturais, "Maritime Zones under Portuguese Sovereignty and/or Jurisdiction," <https://www.dgrm.mm.gov.pt/>, accessed September 5, 2022, <https://www.dgrm.mm.gov.pt/en/web/guest/am-ec-zonas-maritimas-sob-jurisdicao-ou-soberania-nacional>.

- (i) the territorial sea of a coastal State shall not exceed twelve nautical miles measured from the baselines—as a rule, low-water lines.¹⁹ Coastal States exercise sovereignty over their seabed and subsoil and have full control over the water masses and airspace above them in the territorial seas so defined;²⁰
- (ii) the internal waters are the waters on the landward side of the baseline of the territorial sea over which coastal States have sovereignty;²¹
- (iii) the EEZ is an area beyond and adjacent to the territorial sea that shall not extend beyond two hundred nautical miles from the baselines from which the breadth of territorial sea is measured.²² Among other rights, coastal States have in the EEZ sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;²³ and
- (iv) the continental shelf comprises the seabed and subsoil of the submarine areas that extend beyond the territorial sea throughout the natural prolongation of the land territory to the outer edge of the continental margin, or to a distance of two hundred nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend to that distance.²⁴ Within their continental shelves, coastal States exercise exclusive sovereign rights to explore and exploit the mineral and other nonliving resources of the seabed and subsoil together with living organisms belonging to sedentary species.²⁵

¹⁹ See, Articles 2 to 16 of UNCLOS. The exception to this rule is where the coastlines (i) is deeply indented and cut into, or (ii) there is a fringe of islands along the coast in its immediate vicinity. In these cases, the breadth of the territorial sea is measured by using a straight baseline (see, Article 7 of UNCLOS).

²⁰ According to the DGRM, the territorial sea of Portugal is approximately 50.957 square kilometers.

²¹ See, Articles 2(1) and 8(1) of UNCLOS.

²² See, Articles 55 and 57 of UNCLOS.

²³ See, Article 56(1)(a) of UNCLOS. Under Article 56(2) of UNCLOS, Portugal must have due regard to the rights and duties of other States and act in a manner compatible with the provisions of UNCLOS, in exercising its rights and performing its duties. The EEZ of Portugal, which has a total area of 1.660.453 square kilometers, includes three sub-areas—the continental sub-area (287.521 square kilometers), the Azores sub-area (930.687 square kilometers), and the Madeira sub-area (442.245 square kilometers).

²⁴ Provided the relevant criteria are met, the outer edge of the continental margin may be extended to three hundred and fifty nautical miles from the baselines from which the breadth of the territorial sea is measured.

²⁵ See, Articles 77(1) to 77(3) of UNCLOS. In addition, under Article 81 of UNCLOS, the coastal State shall have the exclusive right to authorize and regulate drilling on the continental shelf for all purposes.

In other cases, the categories consist of more general characteristics, *e.g.*, when they refer generally to the marine areas adjacent to the outer limits of the territorial sea, including the seabed and subsoil thereof, or to any other area adjacent to the coast. *Finally*, an alternative approach is also taken that emphasizes that the sovereign rights that matter are those for the purpose of the exploration for and exploitation of living and nonliving mineral resources. The question remains as to the exact scope of these two categories. That is, on the one hand, the broader category in which reference is made to (i) the marine areas adjacent to the outer limits of the territorial sea, including the seabed and subsoil thereof; or (ii) any other area adjacent to the coast.²⁶ Or, on the other hand, the apparently more restrictive definition, which refers specifically to the areas over which Portugal exercises sovereignty or has sovereign rights for the purpose of exploring and exploiting the mineral and other non-living resources of the seabed and subsoil. However, both categories appear to cover the same area. The marine areas adjacent to the outer limits of the territorial sea may include the EEZ and the continental shelf.²⁷ In turn, the areas adjacent to the coast—as well as those over which Portugal exercises sovereignty and/or jurisdiction—include the internal waters, the territorial sea, the EEZ, and the continental shelf.

Accordingly, it appears that the IIAs to which Portugal is a party are applicable to the entire land territory, internal waters, territorial sea, EEZ and continental shelf,²⁸ regardless of the precise wording used to determine their territorial application.²⁹ This means that investments made in areas over which Portugal neither exercises sovereignty nor has sovereign rights over the nonliving resources are not covered by such IIAs.³⁰ This conclusion is not inconsistent with Article 70 of the

²⁶ Or other analogous formulations.

²⁷ See, Article 76 of UNCLOS.

²⁸ The extension of the territorial application of the IIAs to the Portuguese continental shelf is relevant because many of the non-living organic resources of the oceans, including oil and gas, are located there. See, Koh, “Reconciling Competing Claims to the Resources and the Uses of the Sea,” 34.

²⁹ With only one exception, as described above in fn.16. Furthermore, it should be noted that Portugal is not an archipelagic State in the sense of UNCLOS, since it does not consist wholly of one or more archipelagos. See, Article 46(a) of UNCLOS; Armando Marques Guedes, *Direito Do Mar*, 2a. ed (Coimbra: Coimbra Editora, 1998), 133.

³⁰ It is controversial whether investments in the exploration for and exploitation of mineral resources in the Area are covered by IIAs. On the topic, see, Joanna Dingwall, “International Investment Protection in Deep Seabed Mining Beyond National Jurisdiction,” *Journal of World Investment & Trade* 19 (2018): 890–929.

ICSID Convention, which provides that it applies to all territories for whose international relations Portugal is internationally responsible.³¹

The relevance of these conclusions cannot be overstated if Portugal aims to adopt a meaningful and balanced public policy on international investment, including regarding investments associated with the exploration for and exploitation of nonliving resources in the sea, including mineral resources. The application of an IIA presupposes, however, the fulfillment of other criteria, among which their *ratione materiae* scope is of particular importance. Accordingly, the following subsection aims to provide an overview of the international practice of Portugal in this regard.

2. The *ratione materiae* of IIAs

Under the IIAs to which it is a party, Portugal guarantees foreign investors and their investments several substantive rights in addition to procedural rights. It thus comes as no surprise that the question of what an investment is plays a fundamental role in determining with which international obligations must Portugal comply under such IIAs. This issue, which is at the heart of the *ratione materiae* of any IIA, is all the more important when one considers that the relevant multilateral treaties on international investment law, such as the ICSID Convention, do not explicitly define the term *investment*.³² In the absence of such an explicit definition, there are basically two competing conceptual approaches, the meaning of which Heiskanen summarizes as follows:

[t]he “objective” approach seeks to define the general “characteristics” or criteria of investment that may be applied in a variety of contexts to determine whether a particular asset qualifies as an investment. The “subjective” approach, in turn, prefers to focus on how the term investment is defined in the particular investment treaty out of which the dispute arises. In other words, while the “objective” approach assumes that the various enumerative lists in investment treaties should be interpreted in light of the ordinary meaning of the concept of investment, the “subjective” approach is based on the assumption that the starting point of interpretation must always be the definition of investment as agreed by the parties in the applicable investment treaty.³³

³¹ Of the thirty-seven such IIAs, thirty-six refer to the ICSID Convention as a means to settle investment disputes.

³² Article 25(1) of the ICSID Convention simply states that ICSID’s jurisdiction extends to any legal dispute arising directly out of an investment.

³³ Veijo Heiskanen, “Of Capital Import: The Definition of ‘Investment’ in International Investment Law,”

The objective approach attempts to fill the gap left by the lack of an international definition of investment and to serve as a benchmark definition. It does so by establishing a set of characteristics that all projects must meet in order to be considered an investment—often called the *Salini* test.³⁴ These include (i) the investor's commitment in terms of financial resources or through work; (ii) the duration of the project; (iii) the economic risk involved; and, without controversy,³⁵ (iv) the contribution to the economic development of the host country.³⁶ The objective approach seems to be followed more frequently—

in *Protection of Foreign Investments through Modern Treaty Arbitration – Diversity and Harmonisation*, Anne K. Hoffmann, 34 ASA Special Series (Basel: Swiss Arbitration Association, 2010), 59.

³⁴ See, *Salini Costruttori S.P.A. and Italstrade S.P.A. v. Kingdom of Morocco*, ICSID Case No. ARB/00/4, Decision on jurisdiction, dated July 31, 2001, para. 52.

³⁵ See, *Christian Doutremepuich and Antoine Doutremepuich v. Republic of Mauritius*, PCA Case No. 2018-37, Award on Jurisdiction, dated August 23, 2019, para. 119; *Casinos Austria International GmbH and Casinos Austria Aktiengesellschaft v. Argentine Republic*, ICSID Case No. ARB/14/32, Decision on Jurisdiction, dated June 29, 2018, para. 190. See also, Heiskanen, “Of Capital Import: The Definition of ‘Investment’ in International Investment Law,” 70–71.

³⁶ For arbitral tribunals favoring the understanding that the requirement of the economic development of the host country is a constitutive element of any investment, see, *Cairn Energy PLC and Cairn UK Holdings Limited v. The Republic of India*, PCA Case No. 2016-07, Final Award, dated December 21, 2020, para. 706; *Saipem S.p.A. v. People's Republic of Bangladesh*, ICSID Case No. ARB/05/7, Decision on Jurisdiction and Recommendation on Provisional Measures, dated March 21, 2007, para. 99; *Mr Patrick Mitchell v. Democratic Republic of Congo*, ICSID Case No. ARB/99/7, Decision on the Application for Annulment of the Award, dated November 1, 2006, para. 27; *Joy Mining Machinery Limited v. The Arab Republic of Egypt*, ICSID Case No. ARB/03/11, Award on Jurisdiction, dated August 6, 2004, para. 53; *Salini Costruttori S.P.A. and Italstrade S.P.A. v. Kingdom of Morocco*, ICSID Case No. ARB/00/4, para. 52. Alternatively, for arbitral tribunals rejecting that the definition of investment includes the requirement of a contribution to the economic development of the host country, see, *Spółdzielnia Pracy Muszynianka v. Slovak Republic*, PCA Case No. 2017-08, Award, dated October 7, 2020, para. 289; *Isolux Infrastructure Netherlands B.V. v. Kingdom of Spain*, SCC Case No. V2013/153, Award, dated July 12, 2016, para. 685; *Capital Financial Holdings Luxembourg S.A. v. Republic of Cameroon*, ICSID Case No. ARB/15/18, Award, dated June 22, 2017, para. 422; *Hassan Awdi, Enterprise Business Consultants, Inc. and Alfa El Corporation v. Romania*, ICSID Case No. ARB/10/13, Award, dated March 2, 2015, para. 198; *Electrabel S.A. v. The Republic of Hungary*, ICSID Case No. ARB/07/19, Decision on Jurisdiction, Applicable Law and Liability, dated November 30, 2012, para. 5.43; *Deutsche Bank AG v. Democratic Socialist Republic of Sri Lanka*, ICSID Case No. ARB/09/2, Award, dated October 31, 2012, paras. 295–296; *Quiborax S.A., Non-Metallic Minerals S.A. v. Plurinational State of Bolivia*, ICSID Case No. ARB/06/2, Decision on Jurisdiction, September 27, 2012, para. 225; *Mr. Saba Fakes v. Republic of Turkey*, ICSID Case No. ARB/07/20, Award, dated July 14, 2010, paras. 110–111; *Malaysian Historical Salvors v. Malaysia*, ICSID Case No. ARB/05/10, Decision on the Application for Annulment, dated April 16, 2009, paras. 60–61; *Phoenix Action Ltd v. The Czech Republic*, ICSID Case No. ARB/06/5, Award, dated April 15, 2009, para. 85; *Victor Pey Casado and President Allende Foundation v. Republic of Chile*, ICSID Case No. ARB/98/2, Award, dated May 8, 2008, para. 232.

not without controversy³⁷—by arbitral tribunals whose jurisdiction derive from the ICSID Convention.^{38–39}

This does not imply that the definition of investment that one can find in the IIAs to which Portugal is a party is without relevance. The *ratione materiae* of IIAs is of paramount importance as it relates directly to the fundamental question of what type of foreign investment Portugal wishes to protect and promote. Moreover, it also deals with the question of what kind of investments made by Portuguese investors abroad does Portugal want to see protected and promoted—given they may well cause reputational challenges for Portugal, depending on the investments *per se* and the practices associated with them. These questions do not imply that Portugal should reject investments that are not in line with such a policy or that Portuguese investors are prevented from making abroad the investments they want. Rather, it simply underscores the fact that, for various strategic considerations, it may be important for such a policy to make it unequivocally clear that only those investments that are consistent with international and domestic standards on sustainability, as well as those based on a particular guiding economic theory, will be promoted and protected. This is therefore an issue that is directly related to the international foreign investment policy that Portugal intends to pursue and implement, which must, of course, be in line with international and domestic laws and commitments. The basic insight from the above is that IIAs are structural instruments to achieve important economic and social goals—as well as political and diplomatic ones.

³⁷ See, for example, *SGS Société Générale de Surveillance S.A. v. Republic of Paraguay*, ICSID Case No. ARB/07/29, Decision on Jurisdiction, dated February 12, 2010, para. 108; *Biwater Gauff (Tanzania) Ltd. v. United Republic of Tanzania*, ICSID Case No. ARB/05/22, Award, dated July 24, 2008, para. 314.

³⁸ See fn.30 above. The only IIA whose dispute settlement clause does not refer to the ICSID Convention is the IIA with Morocco.

³⁹ See, *Pantechniki S.A. Contractors & Engineers v. Albania*, ICSID Case No. ARB/07/21, Award, dated July 30, 2009, paras. 46–49. See, for arbitral tribunals acting outside the framework of the ICSID Convention, *Isolux Infrastructure Netherlands B.V. v. Kingdom of Spain*, SCC Case No. V2013/153, paras. 683–684; *KT Asia Investment Group B.V. v. Republic of Kazakhstan*, ICSID Case No. ARB/09/8, Award, dated October 17, 2013, para. 165; *Mytilineos Holdings SA v. the State Union of Serbia & Montenegro and Republic of Serbia*, UNCITRAL, Partial Award, dated September 8, 2006, paras. 117–125; *Romak S.A. v. The Republic of Uzbekistan*, PCA Case No. AA280, Award, dated November 26, 2009, paras. 180 and 205–207. However, some arbitral tribunals have ruled that the objective definition of *investment* should not be used outside the framework of the ICSID Convention [see, *Guaracachi America, Inc. and Rurelec PLC v. Plurinational State of Bolivia*, PCA Case No. 2011-17 (UNCITRAL), Award, dated January 31, 2014, para. 364; *White Industries Australia Limited v. Republic of India*, UNCITRAL, Final Award, dated November 30, 2011, paras. 7.4.8.–7.4.9; *Flemingo DutyFree Shop Private Limited v. Republic of Poland*, UNCITRAL, Award, dated August 12, 2016, para. 298].

But what is the definition of investment expressly provided in the IIAs to which Portugal is a party? As a rule, the term is expressly defined by a reference to certain general characteristics, the purpose of which is to serve as a *chapeau*. In addition, it also includes an illustrative list of forms that the investments in question may take.⁴⁰ Looking at such criteria, one can conclude that Portugal adopts the rather broad asset-based definition—the most commonly used definition of investment.⁴¹ Particularly, the thirty-seven IIAs to which Portugal is a party define the term *investment* on the basis of the following seven criteria:⁴² (i) every kind of asset; (ii) every kind of right, (iii) including property, rights and all assets associated with a business activity; (iv) every kind of right for the purpose of acquisition of economic benefits or other business purpose; (v) directly or indirectly owned; (vi) invested by investors of one party in the territory of the other party; and/or (vii) in accordance with the domestic law of the host party.

Not all definitions of *investment* incorporate all of these criteria. The definition of *investment* by reference to the category of assets is the only permanent feature. The other criteria are present in some definitions but absent in others. In terms of listing examples of forms that investment can take, the IIAs to which Portugal is a party do not contain any innovative approach worth mentioning.⁴³

⁴⁰ Article 1(6) of the Energy Charter Treaty, in turn, follows the Swiss Model BIT, as it does not provide for any general characteristics of the concept of *investment*. See also, *Romak S.A. v. The Republic of Uzbekistan*, para. 180.

⁴¹ UNCTAD, *Scope and Definition*, UNCTAD Series on Issues in International Investment Agreements / United Nations Conference on Trade and Development II, Sco (New York: United Nations, 2011), 5.

⁴² Even if a definition does not contain a certain criterion, one can still conclude that such a criterion is implicit in the concept of investment. For example, a reference to the fact that the investment may be directly or indirectly owned is found only in the IIA with China and the IIA with Kuwait—in both IIAs the definition is found in Article 1(1). However, it is possible to conclude that indirectly held investments are also *investments* within the meaning of the term *investment* of the other 35 IIAs. The same applies, of course, to other criteria. Another example is that of the investment in question having to comply with the domestic law of the host party. Some arbitral tribunals have found that this requirement is relevant even where the applicable IIA does not require it explicitly. See, for example, *Plama Consortium Limited v. Republic of Bulgaria*, ICSID Case No. ARB/03/24, Award, dated August 27, 2008, paras. 138–139; *Phoenix Action Ltd v. Czech Republic*, ICSID Case No. ARB/06/5, 2009, para. 101.

⁴³ Of the thirty-seven IIAs, (i) the IIA with Angola excludes investments in public debt from its scope; and (ii) the IIA with Mexico and the IIA with Serbia provide exceptions for the category of “claims to money or to any performance having an economic value.” Article 1(1) of the IIA with Mexico clarifies that the category does not extend to “[...] (i) claims to money that arise solely from commercial contracts for the sale of goods or services; (ii) the extension of credits in connection with a commercial transaction, such as trade financing; (iii) credits with a maturity of less than three years by an investor in the territory of a Contracting Party to an investor in the territory of the other Contracting Party. However, the exception concerning credits with a maturity of less than three years, shall not apply to credits granted by an investor of a Contracting Party to a company of the other Contracting Party owned by the former investor.” In turn,

However, since this chapter deals specifically with investments related to the exploration for and exploitation of mineral resources in the sea, it is worth referring to the forms that foreign investors are likely to rely on in connection with such projects and activities. To this end, it is important to understand the legal specificities of how such investments are made. In the previous section, we noted that the areas over which Portugal has, or exercises sovereignty, sovereign rights, or jurisdiction include the territorial sea, the internal waters, the EEZ, and the continental shelf. These rights are exclusive in the sense that if Portugal decides not to exploit the natural resources present in these areas, no one can do so without its consent, including domestic and foreign investors.⁴⁴ There are at least two situations that more likely fit one of those forms, namely concession agreements for the purpose of exploring and exploiting natural resources, and shares, stocks, and other securities.⁴⁵

Regarding the first form, it should be noted that the exploration for and exploitation of mineral resources are governed by Law No. 54/2015.⁴⁶ In particular, the latter provides the framework for the legal regulation of the development and use of geological resources present in the national territory, including those located in the national maritime space.⁴⁷ The geological resources covered include mineral deposits,⁴⁸ *i.e.*, all mineral deposits that are of special economic interest due to their rarity, high specific value or importance for the application

Article 1(1) of the IIA with Serbia clarifies that “[...] claims to money arising from commercial contracts resulting from the sale of goods or services, or credits granted in relation with this commercial contract” do not fall within the scope of this form of investment.

⁴⁴ It should be noted in this regard that, under Article 246(5)(a) of UNCLOS, Portugal may refuse its consent to the conduct of marine scientific research project in the EEZ or on the continental shelf if that project is of direct significance for the exploration for and exploitation of natural resources, whether living or non-living. In addition, it should be further noted that, under Article 5 of Law No. 54/2015, the mineral deposits present in the areas over which Portugal has sovereignty and jurisdiction are considered geological resources in the public domain of the State.

⁴⁵ According to the objective approach, the mere fact that, for example, a concession agreement exists does not automatically mean that there is an investment within the meaning of the relevant IIA.

⁴⁶ The application of Law No. 54/2015 concerning mineral deposits is further regulated by Decree-Law No. 30/2021. However, the territorial application of Decree-Law No. 30/2021 does not include the national maritime space [see, Article 3(2) of Decree-Law No. 30/2021]. See also, on the regime of Law No. 54/2015, Rui Ferreira and Marta Chantal Ribeiro, “Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo,” *RevCEDOUA* 42, Ano XXI (December 2018): 9–46. It should be noted that, after the publication of this article, Decree-Law No. 88/90, of March 16, 1990, was repealed. Therefore, references to this decree should be disregarded.

⁴⁷ See, Article 1(1) of Law No. 54/2015.

⁴⁸ See, Article 1(2)(a) of Law No. 54/2015.

of the substances they contain in industrial processes.⁴⁹ In addition, they also include other mineral masses that do not have the characteristics required to be classified as mineral deposits.⁵⁰

As is often the case, the exploration for and exploitation of mineral deposits depends on the conclusion of administrative agreements with the relevant authorities.⁵¹ The scope of these agreements may vary depending on their purposes. Accordingly, with respect to existing mineral deposits, they may provide foreign and domestic investors with (i) preliminary assessment rights to conduct studies to better understand the deposits;⁵² (ii) prospecting and exploration rights for development activities to discover and determine their properties until the existence of economic value is established;⁵³ (iii) rights to carry out their economic exploitation;⁵⁴ or (iv) experimental exploitation rights if the conditions for their immediate economic exploitation have not yet been met.⁵⁵ Regardless of the form of the

⁴⁹ See, Article 2(k) of Law No. 54/2015.

⁵⁰ See, Article 2(n) of Law No. 54/2015. However, according to Article 6 of Law No. 54/2015, these geological resources may be privately held or subject to other rights *in rem*. That is, they are not assets integrated into the public property of the State. Accordingly, the exploration for and exploitation of these resources depends only on the issuance of the corresponding licenses. The rights associated with these resources are listed in Article 15(1)(a) of Law No. 54/2015. See also, Article 39 of Law No. 54/2015.

⁵¹ See, Article 12(2) of Law No. 54/2015. The procedure for granting prospecting and exploration rights may be initiated on the initiative of a private person by filing an application to that effect, or on the initiative of the State by opening a tender procedure [see also, Article 19(1) of Law No. 54/2015]. The agreements by which investors obtain rights for the preliminary assessment, prospecting and exploration, experimental exploitation, and exploitation of mineral deposits in the maritime areas adjacent to the archipelagos of the Azores and Madeira, up to two hundred nautical miles, must be concluded between the investor concerned and the competent bodies of the central government and the autonomous region. See also, Article 65(3) of Law No. 54/2015). The tendering procedure for the award of rights for prospecting and exploration for geological resources is governed by a separate decree and, where applicable, by the Public Contracts Code [cf. Decree-Law No. 18/2008, of January 29, 2008 (Republic Diary No. 18/2008, Series 1 of 2008-01-29, pp. 753–852), as amended by Decree-Law No. 78/2022, of July 7, 2022 (Republic Diary No. 78/2022, Series 1 of 2022-11-07, pp. 8–20)].

⁵² See, Article 13(1)(a) of Law No. 54/2015. See also, Articles 16 to 17 of Law No. 54/2015.

⁵³ See, Article 13(1)(b) of Law No. 54/2015. See also, Articles 18 to 23 of Law No. 54/2015.

⁵⁴ See, Article 13(1)(d) of Law No. 54/2015. See also, Articles 24 to 38 of Law No. 54/2015. Under Article 27(1) of Law No. 54/2015, the procedures for granting exploration concessions and the corresponding contracts are subject to the regime for granting exploration rights, with the necessary adjustments, and Article 26(1), which stipulates that the rights to exploit mineral deposits are assigned under concession agreements. As noted by Rui Ferreira and Marta Chantal Ribeiro, it is surprising that the current regulation does not impose more stringent environmental requirements, since the prospecting phase is instrumental in nature compared to the exploitation phase, where environmental impacts are more likely [“Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo,” 32.] However, it should be remembered that Law No. 54/2015 should not be interpreted in isolation from the rest of the legal system, in which many other rules are relevant to establishing environmental requirements for the exploitation of mineral deposits in the sea [See, Chapter 6 above].

⁵⁵ See, Article 13(1)(c) of Law No. 54/2015. See also, Articles 24 to 25 of Law No. 54/2015.

agreement, the above rights are exclusive.⁵⁶ In addition, given the open-ended structure and broad definition of the term *investment* and the fact that the list is non-exhaustive, there appear to be valid arguments that these agreements can be considered investments for all relevant purposes.⁵⁷ The government and other officials should, therefore, bear in mind that Portugal's international responsibility may be triggered by the adoption of measures that breach the IIAs to which Portugal is a party, even if the rights of foreign investors arise from agreements other than concession agreements for the exploitation of mineral resources in the sea.

It should also be noted that, for the purposes of Law No. 54/2015, the national maritime space includes (i) the area between the baselines from which the breadth of the territorial sea is measured and its outer edge; (ii) the EEZ; and (iii) the continental shelf, including two hundred nautical miles beyond it.⁵⁸ The areas classified as having potential for prospecting and exploration for geological resources are defined in the situational plan (*plano de situação*),⁵⁹ the approval of which is a prerequisite for carrying out activities for the exploration for and exploitation of mineral deposits.⁶⁰

As noted above, it is likely that foreign investors involved in the exploration for or exploitation of mineral resources in the sea will also rely on shares, stocks and other securities as forms of investment to claim the existence of an investment within the meaning of the IIAs to which Portugal is a party. Prospecting and exploration rights can only be granted to legal persons, which must in addition meet certain other criteria.⁶¹ These legal persons may, in turn, be owned directly or indirectly by natural or other legal persons. In fact, it is no surprise that investments are made by complex transnational corporate groups, which “[...] operate a network of owned and controlled holding and subsidiary

⁵⁶ See, Article 13(2) of Law No. 54/2015.

⁵⁷ Whether such agreements can be considered an investment depends, of course, on the particular circumstances of each case.

⁵⁸ See, Article 2(1) of Law No. 17/2014 ex vi Article 2(m) of Law No. 54/2015.

⁵⁹ See, Article 18(3) of Law No. 54/2015. The maritime areas intended for the exploration for mineral resources are defined in the instruments of maritime spatial planning (*instrumentos de ordenamento do espaço marítimo nacional*) pursuant to Law No. 17/2014 and Decree-Law No. 38/2015, of March 12, 2015 [Republic Diary No. 38/2015, Series 1 of 2015-03-12, pp. 1523–1549], as amended by Decree-Law No. 139/2015, of July 30, 2015 [Republic Diary No. 139/2015, Series 1 of 2015-07-30, pp. 5176–5176]. Among others, instruments of maritime spatial planning aim to achieve the objectives

⁶⁰ See, Article 40 of Law No. 54/2015.

⁶¹ See, Article 19(4) of Law No. 54/2015.

companies that together form an integrated enterprise across national borders.”⁶² Accordingly, the shares, stocks, or other securities of the legal persons holding the rights to the exploration for and exploitation of mineral resources in the sea may themselves be considered investments.⁶³ It may happen that IIAs explicitly clarify the conditions that an investor must meet in order to be considered the owner of the legal person in question. However, no such clarification is found in any of the IIAs to which Portugal is a party. Be that as it may, if the investment is the shareholding of the legal person making the investment, the loss suffered—if any—is reflexive and indirect, while the direct loss is borne by the legal entity holding those rights.⁶⁴ The idea behind this is that the direct loss suffered as a result of an injury affects the value of the shares, stocks, or other securities of the legal person in question. It is this indirect loss that gives rise to a possible claim by the shareholders against Portugal, even if in this case any potential compensation will be proportional to the percentage of shares, stocks, or other securities the shareholder in question holds.

Depending on the circumstances of the individual case,⁶⁵ it is possible that activities related to the exploration for and exploitation of mineral resources also meet the requirements of other forms of investment listed in the applicable IIA. In fact, foreign investors may, among others, rely on other forms of investments such as claims to any performance having an economic value, movable or immovable property, and rights *in rem* such as mortgages, liens, pledges, and similar rights. Be that as it may, in these and other cases relating to the exploration for and exploitation of mineral resources in the sea where there is an investment within the meaning of the relevant IIA, the person making the investment must be an investor within the meaning of the applicable IIA. This is the subject of the following subsection.

⁶² UNCTAD, *Scope and Definition*, 66.

⁶³ Provided their owners are considered investors within the meaning of that term in the applicable IIA.

⁶⁴ See, Subsection 3 below.

⁶⁵ Relevant circumstances for determining which forms of investment may be relied upon by foreign investors include the person bringing the action against Portugal or the characteristics of the measure that the foreign investor claims have adversely affected the investment in question.

3. *The ratione personae of IIAs*

As explained above, the purpose of IIAs is to promote and protect foreign investors and their investments. In the previous subsection, we addressed the question of what type of investments are protected by the IIAs to which Portugal is a party. However, determining whether such an investment is protected also requires that it be made by someone who qualifies as an investor under the relevant IIA. Therefore, it is important to know the requirements to qualify as such. These questions concern the *ratione personae* of the IIAs.

According to international practice, both natural and legal persons are investors.⁶⁶ As for the category of natural persons, the relevant link often referred to in IIAs is the nationality of the natural person in question. However, there are also IIAs that refer to other factors, such as domicile or permanent residence. In this respect, the Portuguese practice is clear: in all its IIAs, the relevant connection is exclusively the nationality of the natural person. From the perspective of international law, the determination of the nationality of a natural person is not particularly controversial. This is because IIAs often simply refer to the domestic law of the home state to determine whether a natural person has its nationality.⁶⁷ The same technique is used in the IIAs to which Portugal is a party.⁶⁸

However, there is controversy over whether a dual national is protected by such IIAs. That is, a natural person who simultaneously holds the nationality of the host and home States or the nationality of the home State and a third State. As a rule, IIAs are silent on whether dual nationals and their investments are protected. As for the IIAs to which Portugal is a party, only the IIA with Uruguay

⁶⁶ There are some IIAs that use the terms *nationals* and *companies* instead of *investors*. However, only the terminology seems to be different. The scope of these IIAs is similar to that of other IIAs. This different approach where a procedural or substantive right is granted under these IIAs, it must be made clear that it applies to both the *nationals* and the *companies* of the parties. See, Articles 2(4) and 2(5) of the IIA with Cape Verde and the IIA with Guinea-Bissau.

⁶⁷ At the time of writing, the relevant domestic law is Law No. 37/81, of October 3, 1981 [Republic Diary No. 37/81, Series 1 of 1981-10-03, pp. 2648–2651], as amended by Organic Law No. 2/2020, of November 10, 2020 [Republic Diary No. 2/2020, Series 1 of 2020-11-10, pp. 2–15]. See also, Decree Law No. 237-A/2006, of December 14, 2006 [Republic Diary No. 237-A/2006, Series 1 of 2006-12-14, pp. 8388–(2)–8388–(16)], as amended by Decree-Law No. 26/2022, of March 18, 2022 [Republic Diary No. 26/2022, Series 1 of 2022-03-18, pp. 2–59].

⁶⁸ The IIAs with Algeria, Libya, Serbia, and Tunisia are silent on the legal basis on which the nationality of natural persons is to be determined. However, this silence is unlikely to raise major difficulties, as arbitral tribunals are likely to conclude that there is an implicit reference to the domestic law of the home State.

provides that dual nationals and their investments are subject to the domestic law of State in which the investment is made, *i.e.*, they are not entitled to procedural or substantive rights under the IIA.⁶⁹ As with the other IIAs, the question here is whether a dual national can successfully bring a claim against Portugal. Arbitral jurisprudence on this issue is controversial. In any case, it is not irrelevant which international legal framework applies to the arbitral forum and from which the arbitral tribunals derive their jurisdiction, *i.e.*, the applicable IIA or the ICSID Convention. In cases in which the ICSID Convention applies, the natural person making the investment must meet both a negative and a positive condition.⁷⁰ That is, this person must be a national of a Contracting Party other than the one that is also a party to the dispute. The question appears more problematic and controversial when the answer arises solely from the applicable IIA. In this regard, there is no one-size-fits-all solution,⁷¹ since everything depends on what the provision in question says.⁷²

On the one hand, there are UNCITRAL arbitral tribunals that have held that a person who has the nationalities of both parties to the applicable IIA, including that of the party to the dispute, is an investor because he or she meets the latter positive requirement of having the nationality of the home country.⁷³ On the

⁶⁹ See, Article 1(3) of the IIA with Uruguay. It seems that this solution leaves no room for a natural person to claim that, although he or she has the nationality of both the home and host countries, the dominant nationality is that of the home State. However, the Netherlands Model Investment Agreement, for instance, refers explicitly to the criterion of the dominant and effective nationality. See, Article 1(b) of the “Netherlands Model Investment Agreement,” March 22, 2019, <https://investmentpolicy.unctad.org/international-investment-agreements/treaty-files/5832/download>.

⁷⁰ Article 25(2)(a) of the ICSID Convention. See, for example, *Fernando Fraiz Trapote v. Bolivarian Republic of Venezuela*, PCA Case No. 2019-11, Final Award, dated January 31, 2022, para. 264; *Domingo García Armas, Manuel García Armas, Pedro García Armas and others v. Bolivarian Republic of Venezuela*, PCA Case No. 2016-08, Award on Jurisdiction, dated December 13, 2019, para. 666; *Mr. Saba Fakes v. Republic of Turkey*, ICSID Case No. ARB/07/20, Award, dated July 14, 2010, paras. 58–61; *Waguih Elie George Slag And Clorinda Vecchi v. The Arab Republic of Egypt*, ICSID Case No. ARB/05/15, Award, dated June 1, 2009, para. 221; *Ioan Micula, Viorel Micula, S.C. European Food S.A., S.C. Starmill S.R.L. and S.C. Multipack S.R.L. v. Romania*, ICSID Case No. ARB/05/20, Decision on Jurisdiction and Admissibility, dated September 24, 2008, para. 100.

⁷¹ *Fernando Fraiz Trapote v. Bolivarian Republic of Venezuela*, PCA Case No. 2019-11, para. 274.

⁷² For example, the UNCITRAL Arbitration Rules contain no provision on whether dual nationals are entitled to bring claims under the applicable IIA. This is understandable because the purpose of the UNCITRAL Rules goes beyond ISDS arbitral proceedings.

⁷³ See also, albeit on different legal grounds, *Sergei Viktorovich Pugachev v. The Russian Federation*, UNCITRAL, Award on Jurisdiction, dated June 18, 2020, paras. 368–388; *Mohamed Abdel Raouf Bahgat v. Arab Republic of Egypt (I)*, PCA Case No. 2012-07, Decision on Jurisdiction, dated November 30, 2017, paras. 220 and 222–232, referring *inter alia* to Cour d’appel de Paris, Pôle 1 – Chambre 1, 25 avril 2017, No. 15/01040, *République Bolivarienne du Venezuela c. M. Serafin Garcia Armas and Mme Karina*

other hand, other arbitral tribunals have ruled otherwise on the grounds that (i) the dominant and effective nationality of the person who made the investment prevails;⁷⁴ or (ii) the prohibition of claims by dual nationals in the ICSID Convention extends to the applicable IIA, in general, and to *ad hoc* arbitrations, in particular, since there is a hierarchy in the architecture of the ISDS provision that must be enforced.⁷⁵ In practice, the latter conclusion implies the most radical solution, in which dual nationals, regardless of which is the dominant and effective nationality, are not covered by the applicable IIA.⁷⁶

As for *legal persons*, they are also considered *investors* in the IIAs to which Portugal is a party provided some requirements are met. The regimes are numerous and varied. The most adopted definition is, however, built as follows. *First*, they all include the requirement that legal persons must be incorporated and established in accordance with the domestic laws of one of the parties. *Second*, many, but not all IIAs, require legal persons to have their effective seat in the territory of the parties.⁷⁷ *Third*, in addition to the effective seat requirement, a few IIAs require that the legal persons making the investment have substantial business activity in the territory of the party in which the investment is made—or an effective and continuous link with the economy of the latter. The purpose of these requirements is to discourage investors from engaging in treaty-shopping practices. *Fourth*, there are numerous IIAs that contain a non-exhaustive list

García Gruber (annulment proceeding), p. 7; Serafín García Armas and Karina García Gruber v. The Bolivarian Republic of Venezuela, UNCITRAL, PCA Case No. 2013-3, Decision on Jurisdiction, dated December 15, 2014, paras. 119, 201, 206; Victor Pey Casado and President Allende Foundation v. Republic of Chile, ICSID Case No. ARB/98/2, paras. 412–418.

⁷⁴ Fernando Fraiz Trapote v. Bolivarian Republic of Venezuela, PCA Case No. 2019-11, paras. 259 and 296–299 and 399. In this case, the arbitral tribunal analyzed and rejected several arguments raised by Venezuela before concluding that only dual nationals whose effective and dominant nationality is that of their home country are protected by the relevant IIA. The arguments relate, *inter alia*, to (i) the literal interpretation of the relevant provision; (ii) the context of the applicable IIA; and (iii) the object and purpose of the applicable IIA. The criterion of effective and dominant nationality has been an object of analysis for many decades. For an overall analysis, see Domingo García Armas, Manuel García Armas, Pedro García Armas and others v. Bolivarian Republic of Venezuela, PCA Case No. 2016-08, paras. 675–690.

⁷⁵ Domingo García Armas, Manuel García Armas, Pedro García Armas and others v. Bolivarian Republic of Venezuela, paras. 705–725; Enrique and Jorge Heemsen v. the Bolivarian Republic of Venezuela, PCA Case No. 2017–18, Award on Jurisdiction, dated October 29, 2019, paras. 411–442; Dawood Rawat v. The Republic of Mauritius, PCA Case No. 2016-20, Award on Jurisdiction, dated April 6, 2018, para. 179.

⁷⁶ However, this conclusion is deeply rooted in the wording of the ISDS provision that the arbitral tribunal in question had to interpret.

⁷⁷ The requirements of the country-of-incorporation and the effective seat of the legal person in question have been confirmed by long practice and are used in many other international instruments. See, *Barcelona Traction, Light and Power Company, Limited, Judgment*, I.C.J. Reports 1970, para. 70.

of entities that may be considered legal persons and, therefore, investors. This list includes, among others, corporations, commercial companies, joint ventures, asset management companies, foundations, and associations.

However, there are many other IIAs that contain fairly specific requirements that do not follow this practice. In particular, (i) there are two IIAs that do not define the term *investor* by reference to *legal persons*. Instead, they refer directly to *companies* or other forms of association;⁷⁸ (ii) the IIA with Kuwait explicitly states that the governments of the parties to the IIA are considered investors;⁷⁹ (iii) the IIA with Angola clarifies that *legal persons* must have legal personality,⁸⁰ while the IIAs with Cape Verde, Guinea Bissau, and Peru expand the term to include entities without legal personality;⁸¹ (iv) the IIA with Angola further defines the term *legal person* as an entity consisting of a collection of people or a mass of goods and directed toward the realization of common or collective interests;⁸² (v) there are five IIAs that make explicit that *legal persons* can only be considered investors if they invest in the territory of the host country;⁸³ (vi) the IIA with Singapore considers investors both profit-seeking and non-profit legal entities,⁸⁴ and (vii) the IIA with Algeria requires that *legal persons* must have the capacity to make investments.⁸⁵

The ability to identify those who enjoy protection under the IIAs, to which Portugal is a party, is of paramount importance to the question of how public

⁷⁸ See, Article 1(a) of the IIA with Morocco and Article 1(4) of the IIA with Peru respectively. This technique permits to narrow the scope of the entities covered by the IIA in question

⁷⁹ See, Article 1(6) of the IIA with Kuwait. This reference is neither helpful nor necessary for reasons beyond the scope of this chapter. In turn, it is more helpful to specify that both private and public-owned legal persons can be considered investors. See, for example, Article 1.2(4) of the IIA with Singapore, or Article 1(a) of the IIA with Morocco, which includes in the term *investor* the State itself or one of its entities, if they hold a substantial interest in a company.

⁸⁰ See, Article 3(1) of the IIA with Angola.

⁸¹ See, Article 1(4) of the IIA with Peru. It should be noted, however, that the IIA with Peru does not use the term *legal persons* or *legal entities*. Instead, it considers as investor “companies, including corporations or other forms of association, with or without legal personality [...]” The purpose of the latter category seems to be to extend the scope of the IIA to joint ventures and participation agreements (*associação em participação*), which do not have legal personality under Portuguese domestic law.

⁸² See, Article 3(1) of the IIA with Angola. Free translation of “[...] *organização detentora de personalidade jurídica composta por uma colectividade de pessoas ou por uma massa de bens, dirigidos à realização de interesses comuns ou colectivos* [...]”

⁸³ This requirement seems superfluous. See, *Alapli Elektrik B.V. v. Republic of Turkey*, ICSID Case No. ARB/08/13, Award, dated July 16, 2012, paras. 356–358.

⁸⁴ See, Article 1.2(4) of the IIA with Singapore.

⁸⁵ See, Article 1(2) of the IIA with Algeria.

policy should be formulated with respect to the exploration for and exploitation of mineral resources in the sea. As noted above, most of these IIAs use a rather broad definition of *legal persons*. Requirements such as country-of-incorporation and the effective seat of legal persons do not seem to be sufficient if Portugal wants to successfully dismiss certain claims before arbitral tribunals whose jurisdiction arises from treaty-shopping practices by investors. For example, the disadvantage of using the former requirement alone is that it permits a company without any economic ties with the home State to be afforded protection under IIAs.⁸⁶ For this reason, in addition to the country of nationality, most IIAs to which Portugal is a party require that legal persons have their effective seat in the territory of the home State. This is to ensure that protection under the applicable IIA is granted only to legal persons that have a real connection with the country of nationality. However, a better solution would be to also require that the legal person in question actually carries out an economic activity in the territory of the State in which the investment is made.⁸⁷ Otherwise, the other two requirements alone seem incapable to ensure that *letterbox legal persons* are not classified as investors and therefore are not entitled to procedural and substantive rights against Portugal.

It is common for host States to require that foreign investors establish a local subsidiary in its territory to carry out the investment. This also seems to be the case in Portugal for activities related to the exploration for and exploitation of mineral resources in the sea.⁸⁸ This raises the question of whether the legal person so incorporated can make claims against the host country directly. The solution to this problem is not explicitly provided for in the IIAs to which Portugal is a party. It appears that the local subsidiary itself does not enjoy protection under such IIAs because it is a national of the host country. However, it is possible for it

⁸⁶ See, Article 1(b) of the IIA with Morocco and Article 1(3) of the IIA with Tunisia.

⁸⁷ Only four IIAs to which Portugal is a party require this third requirement. See, Article 1(1) of the IIA with Chile, Article 1(3) of the IIA with India, Article 1(2) of the IIA with Jordan, and Article 1.2(5) and (6) of the IIA with Singapore.

⁸⁸ Article 19(4) of Law No. 54/2015 states that prospecting and research rights only be awarded to legal persons that provide guarantees of suitability and technical and financial capacity appropriate to the nature of the work they propose. Pursuant to Article 21(1)(c) of Law No. 54/2015, the investor who finds mineral deposits in the course of prospecting and research work is entitled to exploit them, provided that the relevant legal and contractual provisions are met.

to make such a claim if it is brought under the ICSID Convention.⁸⁹ In this case, the legal person established in the host country is deemed to be a national of the home country for the purpose of determining the jurisdiction of the arbitral tribunal.⁹⁰

There are still cases in which Portugal could be exposed to situations that it did not intend at the time of signing the IIAs. In particular, intermediate legal persons that are part of a group of companies—even if they do not hold a controlling participation—may be able to make claims with respect to an investment made by one of their subsidiaries.⁹¹ In the above subsection, it was pointed out that such intermediate legal entities may have *jus standi* depending on the forms of investment relied upon by foreign investors. This is the case, for example, when the challenged measure also affects the value of the shares, stocks, or other securities held by the intermediate legal person. In this case, of course, *jus standi* depends on whether the intermediate legal person meets the necessary *ratione personae* requirements. However, there are a myriad of situations from which problematic consequences may arise for Portugal, including abuse of process practices by foreign investors. For example, when a legal person that is part of a corporate network—and a claimant in an international arbitration—had changed its nationality for the sole purpose of gaining access to an international arbitration within the host country's IIA network.⁹² Or where the company acting as claimant has the nationality of the home country, but the beneficial and real owner of the investment has the nationality of Portugal.⁹³ None of the IIAs

⁸⁹ Article 25(2)(b) of the ICSID Convention states in part that “[...] any juridical person that had the nationality of the Contracting State party to the dispute on that date [the date on which the parties consented to submit such dispute to arbitration] and which, because of foreign control, the parties have agreed should be treated as a national of another contracting state for the purposes of this Convention.”

⁹⁰ This is different from the situation where the shareholder of the legal person established in the host country under its laws and regulations may bring claims on behalf of that legal entity against the host country for losses suffered by the legal person in question directly.

⁹¹ There are arbitral tribunals that have ruled that a non-controlling participation in a local subsidiary established in the host country does not meet the requirement of *foreign control* provided for in Article 25(2)(b) of the ICSID Convention. See, *Vacuum Salt v. Ghana*, ICSID Case No. ARB/92/1, Award, dated February 16, 1994, para. 54.

⁹² See, for example, *Pac Rim Cayman LLC v. The Republic of El Salvador*, ICSID Case No. ARB/09/12, Decision on the Respondent's Jurisdictional Objections, dated June 1, 2012, paras. 2.96-2.110; *Mobil Corporation and others v. Bolivarian Republic of Venezuela*, ICSID Case No. ARB/07/27, Decision on Jurisdiction, dated June 10, 2010, para. 190; *Autopista Concesionada de Venezuela, C.A. v. Bolivarian Republic of Venezuela*, ICSID Case No. ARB/00/5, Decision on Jurisdiction, dated September 27, 2001, para. 126.

⁹³ See, for example, *Yukos Universal Limited (Isle of Man) v. The Russian Federation*, PCA Case No. 2005-04/

to which Portugal is a party explicitly addresses these issues, which means that Portugal may be exposed to them.

C. Conclusion

In the case of exploration for and exploitation of mineral resources in the sea in areas under Portuguese sovereignty and/or jurisdiction, a person and an investment are granted procedural and substantive rights under IIAs only if certain criteria are met, including requirements relating to the *ratione temporis*, the territorial application, the *ratione materiae*, and the *ratione personae* of the applicable IIA. Portugal—through its public officials—has an international obligation to align its conduct with respect to foreign investors and their investments with several substantive standards, including protection from expropriatory measures; fair and equitable treatment; full protection and security; and the right to make free transfers. Otherwise, if foreign investors who have made investments covered by an IIA to which Portugal is a party conclude that their rights have been violated in any way, they may have recourse to the ISDS mechanisms provided for in such international agreements.⁹⁴ Given the

AA227, Judgment of the Hague Court of Appeal (Unofficial English Translation), dated February 18, 2020, para. 5.1.8.10; *Veteran Petroleum Limited v. The Russian Federation*, PCA Case No. 2005-05/AA228, Judgment of the Hague Court of Appeal (Unofficial English Translation), dated February 18, 2020, para. 5.1.8.10; *Hulley Enterprises Ltd. v. Russian Federation*, PCA Case No. 2005-03/AA226, Judgment of the Hague Court of Appeal (Unofficial English Translation), dated February 18, 2020, para. 5.1.8.10; *SCC Isolux Infrastructure Netherlands, B.V. v. Kingdom of Spain*, Arbitration Case No. V2013/153, Award, dated July 12, 2016, para. 670; *Charanne B.V. and Construction Investments S.A.R.L. v. Spain*, SCC Case No. 062/2012, Final Award, dated January 21, 2016, paras. 412–418; *Plama Consortium Limited v. Republic of Bulgaria*, ICSID Case No. ARB/03/24, Decision on Jurisdiction, dated February 8, 2005, para 128; *Tokios Tokelés v. Ukraine*, ICSID Case No. ARB/02/18, Decision on Jurisdiction, dated April 29, 2004, paras. 53–56, referring to *Barcelona Traction, Light and Power Co., Ltd. (Belgium v. Spain)*, 1970 I.C.J. 3 (Feb. 5), para. 58. This is also a thorny issue under the ICSID Convention, as the latter does not define critical terms such as *foreign control*, leaving that task to the parties to IIAs. On this topic, see *Autopista Concesionada de Venezuela, C.A. v. Bolivarian Republic of Venezuela*, ICSID Case No. ARB/00/5, paras. 110–116.

⁹⁴ In general, Portugal has opted for the most common ISDS architecture—amicable resolution of disputes with a three or six-month cooling-off provision followed by the possibility of settling the investment dispute either through domestic courts or international arbitral tribunals, or both. It should be noted that all IIAs to which Portugal is a party also contain most-favored national and national treatment clauses. This means that Portugal must grant foreign investors treatment no less favorable than that which it grants to the investments of third-country investors or its own investors. The MFN and national treatment clauses used in some IIAs to which Portugal is a party contain important exceptions by allowing Portugal to apply (i) the relevant provisions of its tax law that distinguish between taxpayers that are not in the same situation with respect to their residence or the place where their capital is invested; (ii) not to grant to the investors of the other party any treatment, preference or privilege on the basis of (a) any existing or future free trade area, customs, regional economic cooperation in which Portugal is or will be a party, and

potential financial impact of such decisions, any thoughtful policy regarding the exploration for and exploitation of mineral resources in marine areas under national jurisdiction must be developed in accordance with the existing network of IIAs at any given time. It is therefore important that there be a clear and certain strategic vision of the path that Portugal will take in this regard. As mentioned earlier, this certainty is also a necessity when it comes to the type of foreign investment Portugal wants to protect and promote. Foreign investors crave predictability and stability more than anything else. This statement seems a rather unimpressive and dull way to end this chapter. However, the lack of innovation it implies does not make it any less true—although it may say a thing or two about the person writing it.

(b) any international agreement relating wholly or mainly to taxation. This, of course, affects the degree of control and predictability over what claims can be made against Portugal and what standards of treatment foreign investors can allege to have been violated.

CHAPTER 14 |

PROTECTION OF THE OCEAN AND THE DEVELOPMENT OF DEEP-SEA MINING REGULATION FOR MARITIME AREAS UNDER PORTUGUESE SOVEREIGNTY OR JURISDICTION

Inês Crispim

A. Introduction

The ocean covers three-quarters of the Earth's surface, represents 99% of living space, absorbs 30% of human-produced carbon dioxide, reducing the effects of climate change, produces more oxygen than all forests combined,¹ and over three billion people rely on marine and coastal biodiversity for their survival.² The centrality of the ocean for human life is, thus, unquestionable. This importance is even more clear in Portugal, a country that has always been linked to the sea, with a clear “national maritime identity,”³ a coastline of about two and a half thousand kilometers,⁴ two autonomous archipelagos, and one of the most extensive exclusive economic zones.

At a time when the ocean is facing unprecedented threats caused by human activities, the governments of Portugal and Kenya co-hosted, from June 27 to July 1, the 2022 United Nations Ocean Conference under the theme *Scaling up ocean action based on science and innovation for the implementation of Goal 14: stocktaking, partnerships and solutions*.⁵ The dedication of the 2022 United

¹ European Commission, *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Setting the course for a sustainable blue planet – Joint Communication on the EU's International Ocean Governance agenda*, JOIN(2022) 28 final (June 24, 2022), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022JC0028&qid=1658164223585>.

² United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development,” 14.

³ Sara Daniela Marques da Apresentação, “The Evolution of the Role of the Ocean: How Politics, Science and People are Engaged in this Process – A Review of Portugal's Maritime Identity,” in *Mar e direito em contexto*, ed. Assunção Cristas (Coimbra: Almedina, 2022), 261–88.

⁴ República Portuguesa, “National Ocean Strategy 2021-2030,” 7.

⁵ United Nations, “2022 United Nations Ocean Conference.”

Nations Ocean Conference to the implementation of the SDG 14, *Life Below Water*,⁶ which sets the goal to “conserve and sustainably use the oceans, seas and marine resources for sustainable development,”⁷ demonstrates the importance of the protection of the ocean on the international stage. The conference ended with the adoption of an action-oriented political declaration entitled *Our ocean, our future, our responsibility*.⁸ whose draft was submitted by the presidents of the conference, Kenya and Portugal.⁹

At the same time, the Council of ISA¹⁰ is discussing the draft regulation on the exploitation of mineral resources in the Area,¹¹ which would allow States and companies to submit applications for commercial mining licenses to explore and exploit the seabed of the Area. At the national level, non-living marine resources is one of the priority areas of the Portuguese National Ocean Strategy 2021-2030,¹² which underlines the need to gather more knowledge about mineral resources on the seabed under Portuguese jurisdiction. Moreover, the Climate Framework Law¹³ provides that the government ought to develop environmental regulations for mining in maritime areas to ensure *strict* protection of the marine environment.¹⁴

Deep-sea mining is anything but uncontroversial. Proponents of this economic activity claim that large quantities of metals are needed to transition to a green economy based on alternative green energy sources, and that deep-sea mining might be a viable source for such metals, while opponents point out the

⁶ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁷ United Nations, 14.

⁸ United Nations, *Our ocean, our future, our responsibility*, A/CONF.230/2022/12 (June 17, 2022), available at undocs.org/en/A/CONF.230/2022/12.

⁹ United Nations, “World Leaders Pledge Greater Action to Save Oceans from Existing, Future Threats, Adopting Sweeping Political Declaration as Lisbon Conference Concludes,” <https://press.un.org/en/2022/sea2156.doc.htm>, January 7, 2022, <https://press.un.org/en/2022/sea2156.doc.htm>.

¹⁰ ISA was established under UNCLOS and the 1994 Agreement relating to the implementation of Part XI of the Convention to organize and control all activities regarding mineral resources in the Area for the benefit of humanity as a whole.

¹¹ See, ISA Council, *Draft regulations on exploitation of mineral resources in the Area*, ISBA/25/C/WP.1 (March 22, 2019), available at undocs.org/en/ISBA/25/C/WP.1. The Area is defined under Article 1(1) of UNCLOS as “the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.”

¹² República Portuguesa, “National Ocean Strategy 2021-2030,” 61–63.

¹³ When adopting a legislative act on the basis of a framework law (*lei de bases*), the government is obliged to observe the principles or general reasons laid down in the framework law.

¹⁴ See, Article 46(2) of the Climate Framework Law.

potential serious environmental and social impacts that deep-sea mining could bring.¹⁵

The centrality of the ocean to the response to climate change and to economic and societal well-being, the intensity of the debate on deep-sea mining, the National Ocean Strategy 2021-2030,¹⁶ and the publication of the Climate Framework Law justify an analysis of the duty of the Portuguese State to protect the ocean in the context of the development of deep-sea mining regulation. International and national legal instruments oblige the Portuguese State to protect the ocean.¹⁷ At the international level, notwithstanding the several international conventions to which Portugal is a party, such as the Espoo Convention,¹⁸ the Kiev Protocol,¹⁹ and the OSPAR Convention, this chapter will focus mainly on UNCLOS, given the relevance of this convention. This chapter will also focus on two international environmental law principles that are frequently invoked in the discussion of deep-sea mining—the principle of sustainable development and the precautionary principle. These principles are also expressly recognized in the Climate Framework Law and in the Environmental Framework Law,²⁰ together with valorization of knowledge and science on which decisions should be based. Both laws set the principles and general grounds that the government should respect when developing deep-sea mining environmental regulation.

B. The Deep-Sea Mining Debate

Deep-sea mining was first recognized as a potential valuable source for mineral supply in the 1960s.²¹ The technological and scientific developments of the last years and the urgent need for a green transition have made the exploitation of

¹⁵ See, Section B below.

¹⁶ República Portuguesa, “National Ocean Strategy 2021-2030.”

¹⁷ At the national level, reference is made to the work of Rui Ferreira and Marta Chantal Ribeiro: Ferreira and Chantal Ribeiro, “Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo”; Marta Chantal Ribeiro et al., “O Direito Português Do Mar: Perspetivas Para o Séc. XXI,” *Revista Electrónica de Direito* 18, No. 1 (February 28, 2019): 171–205.

¹⁸ Convention on Environmental Impact Assessment in a Transboundary Context (February 25, 1991), 1989 UNTS 34028. 309.

¹⁹ Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (May 21, 2003), 2685 U.N.T.S 34028. 140.

²⁰ See, Article 4 of the Climate Framework Law and Articles 3 and 4 of the Environment Framework Law.

²¹ John L. Mero, *The Mineral Resources of the Sea*, Elsevier Oceanography Series (Elsevier, 1965).

mineral resources in the deep seabed for commercial purposes a strong possibility in the short-term. The discussion by the Council of the ISA of the proposed regulation on the exploitation of mineral resources in the Area has intensified the debate over whether, how, and when to engage in deep-sea mining.

Proponents of deep-sea mining point out that large quantities of metals are needed to transition to a green economy based on alternative green energy sources and that terrestrial sources may not be sufficient. Polymetallic sulphides, polymetallic nodules, and cobalt-rich ferromanganese crusts—all found in the deep-sea—are rich in metals such as cobalt, copper and lithium, the latter of which is essential for battery production.²² The metals needed for the green transition could thus be extracted from the deep sea. Hence, this activity could provide important resources for decarbonizing the economy and achieving the United Nations 2030 Agenda for SDGs.²³ Other advantages over mining on land that are pointed out include the higher quality of the metals in marine deposits and the fact that there are no local communities living in the mining areas.²⁴

Those who oppose deep-sea mining at this time, on the other hand, express concern about the lack of scientific evidence and the potential environmental, social and cultural impacts that deep-sea mining could bring. Several environmental studies have been conducted to understand and test how to minimize the environmental impacts of this activity. However, significant scientific gaps regarding the severity of the environmental impacts have been reported,²⁵ and it is considered that it is not possible at this time to predict with certainty the environmental harms and ensure protection of the marine environment

²² Rui Ferreira and Marta Chantal Ribeiro, “Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo,” 10.

²³ República Portuguesa, “National Ocean Strategy 2021-2030,” 69.

²⁴ Rahul Sharma and Samantha Smith, “Deep-Sea Mining and the Environment: An Introduction,” in *Environmental Issues of Deep-Sea Mining*, ed. Rahul Sharma (Cham: Springer International Publishing, 2019), 17, http://link.springer.com/10.1007/978-3-030-12696-4_1.

²⁵ Kathryn A. Miller et al., “An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps,” *Frontiers in Marine Science* 4 (January 10, 2018): 418; Rob Williams et al., “Noise from Deep-Sea Mining May Span Vast Ocean Areas,” *Science* 377, No. 6602 (July 8, 2022): 157–58; Craig R. Smith et al., “Deep-Sea Misconceptions Cause Underestimation of Seabed-Mining Impacts,” *Trends in Ecology & Evolution* 35, No. 10 (October 2020): 853–57; Telmo Morato et al., “Modelling the Dispersion of Seafloor Massive Sulphide Mining Plumes in the Mid Atlantic Ridge Around the Azores,” *Frontiers in Marine Science* 9 (July 20, 2022): 910940.

in the development of this activity.²⁶ Notwithstanding these scientific gaps, the results of the studies already conducted on the potential environmental impacts are alarming and indicate the threat of severe impacts.²⁷ Of particular note is the research conducted near the Autonomous Region of the Azores. It is estimated that mining of massive sulfides in the deep ocean could potentially generate toxic sediment plumes that could potentially cover an area of up to one hundred fifty square kilometers, and that plumes above concentration thresholds could affect an area of more than 10,000 square kilometers, regardless of temporal frequency, with the risk of adverse impacts on marine biodiversity and fisheries. This would be of particular concern in a region such as the Azores, where the local population is heavily dependent on the ocean.²⁸

Moreover, even proponents of deep-sea mining admit that this activity would not be necessary if (i) other means of extracting the needed minerals for industrial and domestic use were developed; (ii) alternatives to the minerals themselves were discovered or promoted to replace materials that are gradually running out in terrestrial production; or (iii) recycling of materials became more efficient.²⁹ Along these lines, opponents of deep-sea mining argue that adopting a circular economy could provide an alternative to this economic activity by reusing, repurposing, reforming, remanufacturing, and recycling products that contain the resources needed for deep-sea mining, as much as possible, as well as by reducing metals in product design and educating consumers to use fewer goods.³⁰

²⁶ Diva J. Amon et al., “Assessment of Scientific Gaps Related to the Effective Environmental Management of Deep-Seabed Mining,” *Marine Policy* 138 (April 2022): 105006.

²⁷ Smith et al., “Deep-Sea Misconceptions Cause Underestimation of Seabed-Mining Impacts”; Philip P. E. Weaver and David Billett, “Environmental Impacts of Nodule, Crust and Sulphide Mining: An Overview,” in *Environmental Issues of Deep-Sea Mining*, ed. Rahul Sharma (Cham: Springer International Publishing, 2019), 27–62, http://link.springer.com/10.1007/978-3-030-12696-4_3; Morato et al., “Modelling the Dispersion of Seafloor Massive Sulphide Mining Plumes in the Mid Atlantic Ridge Around the Azores”; Williams et al., “Noise from Deep-Sea Mining May Span Vast Ocean Areas”; Diva J. Amon et al., “Heading to the Deep End without Knowing How to Swim: Do We Need Deep-Seabed Mining?,” *One Earth* 5, No. 3 (March 2022): 220–23.

²⁸ Morato et al., “Modelling the Dispersion of Seafloor Massive Sulphide Mining Plumes in the Mid Atlantic Ridge Around the Azores.”

²⁹ Rahul Sharma, “Approach Towards Deep-Sea Mining: Current Status and Future Prospects,” in *Perspectives on Deep-Sea Mining – Sustainability, Technology, Environmental Policy and Management*, ed. Rahul Sharma (Springer, 2022), 42.

³⁰ IUCN World Conservation Congress, “069 – Protection of Deep-Ocean Ecosystems and Biodiversity through a Moratorium on Seabed Mining,” <https://www.iucncongress2020.org>, September 22, 2021, <https://www.iucncongress2020.org/motion/069>; Amon et al., “Heading to the Deep End without Knowing How to Swim”; Miller et al., “An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps.”

Recycling is considered (i) to cause incomparably less environmental impact than deep-sea mining; (ii) to require less energy, water and chemicals; (iii) to produce less waste; and (iv) to provide greater certainty regarding the technological and structural resources required. In addition, it is pointed out that, even if deep-sea mining could enhance some of the SGDs, the balance with SGD 14 would be quite challenging, considering the profound potential environmental impacts of this activity and the trade-offs required for the conciliation with other SGDs.³¹

Several entities, including the European Commission,³² the World Economic Forum (whose partners include major global corporations),³³ the IUCN—composed of sovereign States, government agencies, nongovernmental organizations, academic institutions, and business associations³⁴—the scientific community,³⁵ corporations and NGOs,³⁶ have advocated for a moratorium on the ISA regulation of deep-sea mining. The European Commission's joint statement expressly states that this moratorium should be maintained “[...] until scientific

³¹ A. Singh Pradeep, “Deep Seabed Mining and Sustainable Development Goal 14,” in *Life Below Water*, ed. Walter Leal Filho et al., Encyclopedia of the UN Sustainable Development Goals (Cham: Springer International Publishing, 2022), 280, <https://link.springer.com/10.1007/978-3-319-98536-7>.

³² European Commission, *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Setting the course for a sustainable blue planet – Joint Communication on the EU's International Ocean Governance agenda*, 2–5.

³³ World Economic Forum, “Decision-Making on Deep-Sea Mineral Stewardship: A Supply Chain Perspective” (World Economic Forum, April 2022), https://www3.weforum.org/docs/WEF_Decision_Making_on_Deep_Sea_Mineral_Stewardship_2022.pdf.

³⁴ IUCN World Conservation Congress, “069 – Protection of Deep-Ocean Ecosystems and Biodiversity through a Moratorium on Seabed Mining.”

³⁵ “Marine Expert Statement Calling for a Pause to Deep-Sea Mining,” accessed August 23, 2022, <https://www.seabedminingsciencestatement.org/>.

³⁶ See, for example, for corporations, BMW Group, Samsung, Samsung SDI, Google, Volvo Group, Philips, Volkswagen, Scania, Patagonia and Renault Group, according to “No Deep Seabed Mining: Call for a Moratorium,” accessed August 23, 2022, <https://www.noseabedmining.org/>. See, for example, for NGOs, Greenpeace, “Deep Trouble,” <https://www.greenpeace.org>, September 12, 2020, <https://www.greenpeace.org/international/publication/45835/deep-sea-mining-exploitation/>; Amnesty International, “Powering Change: Principles for Businesses and Governments in the Battery Value Chain (Updated October 2022),” <https://www.amnesty.org>, April 2, 2021, <https://www.amnesty.org/en/documents/act30/3544/2021/en/>. These were signed by various entities, including International Amnesty. On the national level, Oceano Livre, “Manifesto,” accessed August 23, 2022, <https://oceanolive.org/>; Associação Natureza Portugal, “Defender o Mar Profundo,” <https://www.natureza-portugal.org>, accessed August 27, 2022, https://www.natureza-portugal.org/o_que_fazemos_222/oceanos/defender_o_mar_profundo/. See, in this regard, Deep Sea Conservation Coalition, which provides a list of entities that have publicly spoken out against deep sea mining [Deep Sea Conservation Coalition, “Momentum for a Moratorium,” <https://savethehighseas.org>, accessed August 23, 2022, https://savethehighseas.org/moratorium_2022/].

gaps are properly filled, no harmful effects arise from mining and the marine environment is effectively protected.”³⁷

Both sides of the discussion raise, expressly or implicitly, arguments based on (i) the protection of the sea; (ii) the principle of sustainable development; and (iii) the precautionary principle. The next section of this chapter focuses on the analysis of UNCLOS, one of the most important international conventions,³⁸ which provides for the protection of the marine environment, while Sections D and E further develop the above principles.

C. United Nations Convention on The Law of the Sea

UNCLOS is considered the constitution for the oceans.³⁹ As stated in its preamble,

[...] a legal order for the seas and oceans which will facilitate international communication and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection, and preservation of the marine environment.

The purpose of UNCLOS reflects concerns about the rights of States relating to the sea—including the equitable and efficient use of maritime resources—and concerns about the protection of the marine environment and the need to establish the States’ obligations in this regard.

UNCLOS recognizes coastal States’ sovereign rights and jurisdiction, which vary depending on the nature and location of each activity. With relevance to deep-sea mining, Portugal—as a coastal State—exercises sovereign rights and jurisdiction over its EEZ and continental shelf for the purpose of exploring and exploiting its natural resources, whether living or non-living, including mineral and other non-living resources of the seabed and subsoil. They are exclusive in

³⁷ European Commission, *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Setting the course for a sustainable blue planet - Joint Communication on the EU’s International Ocean Governance agenda*, 2.

³⁸ Nadia Bernaz and Irene Pietropaoli, “Developing a Business and Human Rights Treaty: Lessons from the Deep Seabed Mining Regime Under the United Nations Convention on the Law of the Sea,” *Business and Human Rights Journal* 5, No. 2 (July 2020): 203.

³⁹ Koh, “A Constitution for the Ocean’ in United Nations Convention on the Law of the Sea with Index and Final Act of the Third United Nations Conference on the Law of the Sea.”

the sense that if the State does not exercise its exploration and exploitation rights over its natural resources, the exploration or exploitation depend on the State's permission.⁴⁰ In addition, the State has the right to construct and to authorize and regulate the construction, operation, and use of installations and structures for the exploitation of the living and non-living natural resources of the waters overlying the seabed and of the seabed and its subsoil,⁴¹ and to authorize and regulate drilling on its continental shelf, regardless of the purpose of such drilling.⁴² This authorization may be granted to any public or private entity.⁴³

Part XII of UNCLOS is dedicated to protecting and preserving the marine environment. It is understood that protection relates to an existing or potential harm, while preservation refers to the safeguarding of the quality of the marine environment and to long-term policies to address environmental issues.⁴⁴

States have a general obligation to protect and preserve the marine environment.⁴⁵ This obligation recognizes the autonomous value of the integrity of the marine environment⁴⁶ and is owed to the "[...] international community as a whole."⁴⁷ The marine environment is not defined under UNCLOS. It is considered that this term should be understood broadly to include not only the areas within States' sovereignty and jurisdiction, but also beyond them,⁴⁸ as well as marine life.⁴⁹ As stated in the preamble to UNCLOS, "[...] the problems of ocean

⁴⁰ See, Articles 56 and 77 of UNCLOS respectively.

⁴¹ See, Articles 56, 60 and 80 of UNCLOS.

⁴² See, Article 81 of UNCLOS.

⁴³ Rui Ferreira and Marta Chantal Ribeiro, "Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo," 13.

⁴⁴ Veronica Frank, *The European Community and Marine Environmental Protection in the International Law of the Sea: Implementing Global Obligations at the Regional Level* (Brill | Nijhoff, 2007), 19, <https://brill.com/view/title/13417>.

⁴⁵ See, Article 192 of UNCLOS.

⁴⁶ Rui Ferreira and Marta Chantal Ribeiro, "Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo," 14–15.

⁴⁷ James Harrison, "The United Nations Convention on the Law of the Sea and the Protection and Preservation of the Marine Environment," in *Saving the Oceans Through Law: The International Legal Framework for the Protection of the Marine Environment*, vol. 1 (Oxford University Press, 2017), 25.

⁴⁸ Myron H. Nordquist, ed., *United Nations Convention on the Law of the Sea, 1982: A Commentary*, vol. IV (Dordrecht ; Boston : Hingham, MA, USA: Martinus Nijhoff ; Distributors for the United States and Canada, Kluwer Academic Publishers, 1985), Article 192(11)(b); Angelica Bonfanti and Francesca Romanin Jacur, "Energy from the Sea and the Protection of the Marine Environment: Treaty-Based Regimes and Ocean Corporate Social Responsibility," *The International Journal of Marine and Coastal Law* 29, No. 4 (October 30, 2014): 625; Harrison, "The United Nations Convention on the Law of the Sea and the Protection and Preservation of the Marine Environment," 24.

⁴⁹ Nordquist, *United Nations Convention on the Law of the Sea, 1982*, IV:Article 192(11)(a).

space are closely interrelated and need to be considered as a whole.” The centrality of the ocean to all human life and the interconnections in the ocean demand that the protection and preservation of the marine environment is perceived as a shared interest of the international community.⁵⁰

The obligation to protect and preserve the marine environment limits the exercise by States of their sovereign rights under UNCLOS. This limitation is express as regards the sovereign right to exploit natural resources, which must be exercised “[...] in accordance with their duty to protect and preserve the marine environment.”⁵¹ States must take all necessary measures to prevent, reduce, and control pollution of the marine environment from any and all sources.⁵² This obligation focuses on eliminating existing pollution and preventing pollution in the future.⁵³ Accordingly, States shall take all necessary actions to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment.⁵⁴

Pollution of the marine environment is defined broadly to include any substance or energy introduced directly or indirectly by humans that has or may have harmful effects.⁵⁵ Thus, the qualification as pollution does not depend on the certainty of the occurrence of a hazardous event—its mere likelihood is sufficient to trigger the State’s duty to act.⁵⁶ In addition, it should be noted that the States’ obligation to protect the environment under Article 192 of UNCLOS should be interpreted broadly to include harms deriving from sources that do not qualify as pollution.⁵⁷

States also have a duty not to transfer damage or hazards or transform one type of pollution into another, as well as to take all necessary measures to prevent,

⁵⁰ Pradeep, “Deep Seabed Mining and Sustainable Development Goal 14,” 272.

⁵¹ See, Article 193 of UNCLOS.

⁵² See, Article 194 of UNCLOS.

⁵³ Nordquist, *United Nations Convention on the Law of the Sea*, 1982, IV:Article 194(10)(b).

⁵⁴ See, Article 194(2) of UNCLOS.

⁵⁵ See, Article 1(1)(4) of UNCLOS. See also, Rui Ferreira and Marta Chantal Ribeiro, “Contributo para o desenvolvimento da Lei n.º 54/2015: mineração no mar profundo,” 15; Bonfanti and Jacur, “Energy from the Sea and the Protection of the Marine Environment,” 625.

⁵⁶ Philomène A. Verlaan, “Environmental Issues of Deep-Sea Mining: A Law of the Sea Perspective,” in *Environmental Issues of Deep-Sea Mining*, ed. Rahul Sharma (Cham: Springer International Publishing, 2019), 24, http://link.springer.com/10.1007/978-3-030-12696-4_2.

⁵⁷ Harrison, “The United Nations Convention on the Law of the Sea and the Protection and Preservation of the Marine Environment,” 24.

reduce and control pollution of the marine environment resulting from the use of technologies or the introduction of alien or new species.⁵⁸ The measures to prevent, reduce and control pollution of the marine environment should include the enactment of laws and regulations where pollution is caused by, or is in connection with, activities on the seabed under their sovereignty or jurisdiction. Domestic law must not be less effective than international rules, standards, recommended practices, and procedures.⁵⁹ Such laws and regulations must be enforced by domestic authorities, who must also take all necessary measures, including the adoption of laws and regulations, to implement applicable international rules and standards to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction.⁶⁰

This regulation must be based on solid scientific knowledge of the marine environment.⁶¹ UNCLOS recognizes the value of scientific knowledge in regulating marine activities in accordance with the obligation to protect and preserve the marine environment and establishes obligations to promote scientific research. These obligations include the need to cooperate with the aim of promoting studies, conducting scientific research programs, and supporting the exchange of information and data on pollution of the marine environment.⁶² Moreover, States have the obligation, while respecting the rights of other States and to the extent practicable, promote continuous monitoring—observation, measurement, evaluation and analysis⁶³—of the risks or effects of pollution of the marine environment by recognized scientific methods and publish reports containing the results.⁶⁴ In particular, where States have reasonable cause to believe that certain planned activities under their jurisdiction or control may cause significant pollution or significant or harmful alteration of the marine environment, the adverse effects of such activities should be assessed and the results reported.⁶⁵

States may be held liable for failing to fulfill their international obligations concerning the protection and preservation of the marine environment, in

⁵⁸ See, Articles 195 and 196 of UNCLOS.

⁵⁹ See, Article 208 of UNCLOS.

⁶⁰ See, Article 214 of UNCLOS.

⁶¹ Yoshifumi Tanaka, *The International Law of the Sea*, 3rd ed. (Cambridge University Press, 2019), 432.

⁶² See, Article 200 of UNCLOS.

⁶³ Nordquist, *United Nations Convention on the Law of the Sea*, 1982, IV:Article 204(1).

⁶⁴ See, Articles 204(1) and 205 of UNCLOS. See also, Nordquist, IV:Article 204(1).

⁶⁵ See, Article 206 of UNCLOS.

accordance with international law, and shall ensure that recourse is available in accordance with their legal systems for prompt and adequate remediation in respect of damages caused by any natural or legal person under their jurisdiction.⁶⁶

UNCLOS thus expressly recognizes coastal States' sovereign rights and jurisdiction over their EEZs and continental shelf for the purpose of exploring and exploiting the mineral resources of the seabed and subsoil. However, both the enactment of laws and the development of deep-sea mining are limited by the States' duty to protect and preserve the marine environment. In this framework, it is now important to focus on two principles of international environmental law that are frequently invoked in the discussion of deep-sea mining—the principle of sustainable development and the precautionary principle.

D. The Principle of Sustainable Development

Sustainable development was described in the Report of the World Commission on Environment and Development, *Our Common Future*, as development that “[...] meets the needs of the present without compromising the ability of future generations to meet their own needs.”⁶⁷ It aims to balance the necessity of economic development with environmental protection and human well-being, considering inter and intragenerational equity.⁶⁸

Portugal—as a Member State of the United Nations—has adopted the United Nations 2030 Agenda for Sustainable Development, which provides “[...] a shared blueprint for peace and prosperity for people and the planet, now and into the future.”⁶⁹ At its core are the seventeen SDGs and one hundred sixty-nine related targets, which are envisioned to be accomplished by 2030.⁷⁰ The SDGs reflect goals,⁷¹

⁶⁶ See, Article 235 of UNCLOS.

⁶⁷ General Assembly 42/427, *Report of the World Commission on Environment and Development*, A/42/427 (4 August 1987), available at undocs.org/en/A/42/427, Annex.

⁶⁸ Tanaka, *The International Law of the Sea*, 2019, 302; Luise Heinrich and Andrea Koschinsky, “Deep-Sea Mining: Can It Contribute to Sustainable Development?,” in *Transitioning to Sustainable Life Below Water*, ed. Werner Ekau and Anna-Katharina Hornidge, Transitioning to Sustainability Series 14 (MDPI, 2022), 109.

⁶⁹ United Nations, “Sustainable Development Goals of the United Nations,” accessed August 22, 2022, <https://sdgs.un.org/>.

⁷⁰ United Nations.

⁷¹ Luise Heinrich and Andrea Koschinsky, “Deep-Sea Mining: Can It Contribute to Sustainable Development?,” 109.

[...] to end poverty and hunger everywhere; to combat inequalities within and among countries; to build peaceful, just and inclusive societies; to protect human rights and promote gender equality and the empowerment of women and girls; and to ensure the lasting protection of the planet and its natural resources [and]

[...] to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities.⁷²

As stated by the General Assembly, the SDGs are not legally binding, and States have flexibility in developing national-level strategies to promote the SDGs.⁷³ The Portuguese legislature has enshrined the principle of sustainable development in the Environment Framework Law and the Climate Framework Law. In particular, the Climate Framework Law provides that natural and human resources should be used in a balanced manner, taking into account the obligations of solidarity and respect towards future generations and the remaining species that coexist on the planet.⁷⁴

The United Nations 2030 Agenda is not the first international agenda to set world development goals. Rather, it results from an evolution from the eight 2001 United Nations Millennium Development Goals.⁷⁵ It is, however, the first one to include the ocean as an autonomous goal or target. SDG 14—*Life Below Water*—sets the goal to “conserve and sustainably use the oceans, seas and marine resources for sustainable development.”⁷⁶ This goal consists of ten targets divided into two groups—the *outcome targets*, which are targets one through seven, and the *means of achieving*, which are targets eight through ten.⁷⁷

⁷² United Nations, “Transforming Our World: The 2030 Agenda for Sustainable Development.” See also, General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/RES/70/01 (October 21, 2015), available at undocs.org/en/A/RES/70/1.

⁷³ General Assembly 70/1, *Report of the Secretary-General on the work of the Organization*, A/70/1 (July 22, 2015), available at undocs.org/en/A/70/1. See also, Pradeep, “Deep Seabed Mining and Sustainable Development Goal 14,” 273.

⁷⁴ See, Articles 2 and 3(a) of the Environment Framework Law and Article Article 4(a) of the Climate Framework Law.

⁷⁵ Pradeep, “Deep Seabed Mining and Sustainable Development Goal 14,” 273; United Nations, “Millennium Development Goals,” <https://www.un.org>, accessed December 18, 2022, <https://www.un.org/millenniumgoals/>.

⁷⁶ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁷⁷ Mafalda Paiva de Oliveira, “The Perception of the Ocean Centrality for the Climate Crisis: Awareness, Trends and Perspectives in the Preparation of the 2nd United Nations Ocean Conference,” in *Mar e direito em contexto*, ed. Assunção Cristas (Coimbra: Almedina, 2022), 18.

The first outcome target aims to prevent and significantly reduce marine pollution of all kinds by 2025, while the second one aims to achieve sustainable management and protection of marine and coastal ecosystems by 2020 in order to avoid significant adverse impacts. The first means of achieving those targets is through the increase of scientific knowledge, the development of research capacity, and the transfer of marine technology to improve ocean health and increase the contribution of marine biodiversity to the development of developing countries. In relation to the latter, the General Assembly has proclaimed the *United Nations Decade of Ocean Science for Sustainable Development* for a period of ten years, beginning in 2021.⁷⁸ Generating scientific knowledge and underpinning infrastructure and partnerships for sustainable ocean development, and providing marine science, data, and information to advise ocean policy in support of the SDGs are the two main objectives.⁷⁹

As mentioned above, deep-sea mining is indicated as being able to provide important resources for decarbonizing the economy and achieving the SDGs.⁸⁰ Nevertheless, balancing this with SDG 14 is seen as a challenge.⁸¹ In fact, deep-sea mining is currently considered not compatible with the Sustainable Blue Economy Finance Principles,⁸² and with the “[...] spirit and intent of the Sustainable Blue Economy.”⁸³ Financial institutions are thus called upon to support alternative strategies to deep-sea mining sector that reduce the environmental impacts of mining on land and promote the transition toward a circular economy.⁸⁴ One of the arguments of the Sustainable Blue Economy Finance Initiative is that

⁷⁸ General Assembly 72/73, *Proposed revisions to the Regulations and Rules Governing Programme Planning, the Programme Aspects of the Budget, the Monitoring of Implementation and the Methods of Evaluation (article VII and annex)*, A/72/73 (July 22, 2015), available at undocs.org/en/A/72/73.

⁷⁹ Pradeep, “Deep Seabed Mining and Sustainable Development Goal 14,” 274.

⁸⁰ República Portuguesa, “National Ocean Strategy 2021–2030,” 69.

⁸¹ Pradeep, “Deep Seabed Mining and Sustainable Development Goal 14,” 280.

⁸² UNEP, “The Principles. Sustainable Blue Finance,” <https://www.unepfi.org>, accessed December 23, 2022, <https://www.unepfi.org/blue-finance/the-principles/>. The Sustainable Blue Economy Finance Principles outline the fundamental principles for investing in the ocean economy and provide global guidance for financing a sustainable blue economy and advancing SDG 14—Life Below Water.

⁸³ UNEP.

⁸⁴ UNEP, “Harmful Marine Extractives: Understanding the Risks & Impacts of Financing Non-Renewable Extractive Industries,” United Nations Environment Programme Finance Initiative (Geneva: United Nations, 2022), <https://www.unepfi.org/wordpress/wp-content/uploads/2022/05/Harmful-Marine-Extractives-Deep-Sea-Mining.pdf>. The Sustainable Blue Economy Finance Initiative is a global community convened by the United Nations to support the implementation of the Sustainable Blue Economy Finance Principles.

[w]ith the current absence of a detailed understanding of ecological relationships, the only conclusion that can be drawn is that, at present, no robust, precautionary approach exists to safeguard the ocean against the potential ecological impacts associated with deep-sea mining.⁸⁵

As regards deep-sea mining, the precautionary approach is often called for, including in the context of sustainable development. For instance, Principle Ten (Precautionary) of the Sustainable Blue Economy Finance Principles states that investments, activities, and projects should only be supported if they have been preceded by an assessment of social and environmental risks and impacts based on sound science, and that this principle should take precedence especially when scientific data are not available.

E. The Precautionary Principle

The prevention and the precautionary principles are frequently discussed and invoked in the context of ocean environmental protection. The prevention principle states that in cases where future harm is identified and foreseeable, protective measures should be taken at the source of the pollution to prevent environmental damage.⁸⁶ However, because this principle applies only before established impacts, it is not appropriate for responding to potential future hazards when they have not been scientifically demonstrated. Considering that the impacts of human activities on ecosystems are subject to a degree of uncertainty, and the difficulties in proving any damage to the environment caused by human activities, a more proactive approach became necessary to justify the adoption of protective measures at an earlier stage.⁸⁷ The precautionary principle was recognized internationally in the 1992 Rio Declaration on Environment and Development. Principle 15 states that

[i]n order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall

⁸⁵ United Nations Environment Programme, 33.

⁸⁶ David M. Dzidzornu, "Four Principles in Marine Environment Protection: A Comparative Analysis," *Ocean Development & International Law* 29, No. 2 (January 1998): 98.

⁸⁷ Aline L. Jaeckel, *The International Seabed Authority and the Precautionary Principle: Balancing Deep Seabed Mineral Mining and Marine Environmental Protection* (Brill | Nijhoff, 2017), 15–37, <https://brill.com/view/title/33967>.

not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

This principle is considered one of the most fundamental principles of international law.⁸⁸ It calls for action even if there is no scientific evidence of harm, but there is a possibility that such harm could occur.⁸⁹ It can be divided into three components: (i) threat of environmental hazard, (ii) uncertainty, and (iii) action. The first and second elements are related to the concept of *risk*, which is evaluated by taking into account the severity of a given event and the probability of its occurrence. The first element—threat of environmental hazard—means that the potential harm must reach a minimum level of severity to justify action. There is no consensus on such a level—opinions range from not unavoidable, minimal, or trivial to severe or irreversible.⁹⁰ The threat should be taken seriously where it is indicated by science.⁹¹ The second element—uncertainty—requires that a minimum threshold of probability is met. Different degrees of uncertainty are tolerated across international instruments, but “[...] reasonable grounds for concern [...]”⁹² are demanded under customary law. The 1992 Rio Declaration on Environment and Development adopts the term *threat*. Lastly, when the first and second elements are satisfied, effective and proportional remedial action should be taken at an early stage.⁹³ It is also important to emphasize that under this principle, the question of whether a particular activity may endanger the environment is decided in favor of the environment.⁹⁴

Both the prevention and precautionary principles are expressly acknowledged under the Climate Framework Law and the Environmental Framework Law. These framework laws state, in similar language, that adverse effects on the climate should preferably be prevented or mitigated at the source, both in the case of immediate and concrete hazards and in the case of future and uncertain risks.

⁸⁸ *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, February 1, 2011, ITLOS Reports 2011, pp. 73–78, para. 242; *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion, April 2, 2015, ITLOS Reports 2015, p. 59, para. 208. See also, Jaeckel, 16.

⁸⁹ Dzidzornu, “Four Principles in Marine Environment Protection,” 98.

⁹⁰ See, 1992 Rio Declaration on Environment and Development.

⁹¹ Sven Ove Hansson, “How Extreme Is the Precautionary Principle?,” *NanoEthics* 14, No. 3 (December 2020): 245–57.

⁹² Jaeckel, *The International Seabed Authority and the Precautionary Principle*, 39.

⁹³ Jaeckel, 37–43.

⁹⁴ Jaeckel, 29–30.

In addition, these legal frameworks provide that in cases of scientific uncertainty, the burden of proof is on the party claiming the absence of hazards or risks.⁹⁵

This precautionary approach is often cited as a justification for the adoption of environmental protection measures and is accepted when some uncertainty remains about the risks of environmental damage.⁹⁶ In the context of deep-sea mining activities, it gains particular significance, considering the lack of scientific evidence and the potential environmental, social, and cultural impacts that deep-sea mining could bring. For instance, the High-Level Panel for a Sustainable Ocean Economy 2020, of which Portugal is a member, committed to adopting a precautionary approach to seabed mining and ensuring that “sufficient knowledge and regulations are in place to ensure that any activity related to seabed mining is informed by science and ecologically sustainable.”⁹⁷ In addition, the abovementioned European Commission’s joint statement adopts a similar wording when defending the moratorium on the ISA regulation of deep-sea mining.⁹⁸

F. Conclusion

The centrality of the ocean to human life, sustainable development, and addressing climate change requires that its protection be perceived as a priority. Portugal has been demonstrating a strong concern with protecting the marine environment in a number of ways such as (i) supporting various international conventions and the 2030 United Nations Agenda for Sustainable Development; (ii) co-hosting the 2022 United Nations Ocean Conference; and (iii) adopting political compromises following the 2022 United Nations Ocean Conference and through its membership in the High-Level Panel for a Sustainable Ocean Economy 2020. At the same time, non-living marine resources were included as a priority area of the Portuguese National Ocean Strategy 2021-2030,⁹⁹

⁹⁵ See, Article 3(c) of the Portuguese Environmental Framework Law and Article 4(j) of the Portuguese Climate Framework Law.

⁹⁶ Jaeckel, *The International Seabed Authority and the Precautionary Principle*, 15–16.

⁹⁷ High Level Panel for a Sustainable Ocean Economy, “Transformations for a Sustainable Ocean Economy. A Vision for Protection, Production and Prosperity.”

⁹⁸ European Commission, *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Setting the course for a sustainable blue planet - Joint Communication on the EU’s International Ocean Governance agenda*, 2.

⁹⁹ República Portuguesa, “National Ocean Strategy 2021-2030,” 7.

in addition to the Climate Framework Law providing for the development of environmental regulations for mining in maritime areas by the government. Thus, it is expected that the development of such regulations will be in line with the political compromises and the duty of Portugal to protect the sea.

This chapter has analyzed the duty to protect the marine environment by States in the context of UNCLOS, the principle of sustainable development, and the precautionary principle. UNCLOS recognizes sovereign rights and jurisdiction to coastal States to explore and exploit their natural resources in their EEZ and continental shelf. However, the exercise of sovereign rights and the development of legislation are limited by the duty to protect the marine environment. This duty includes promoting scientific research and enacting and enforcing laws to protect the marine environment based on scientific knowledge. In addition, Portugal has adopted the United Nations 2030 Agenda for Sustainable Development, and with it the SGD 14, in which the protection of the marine environment plays a central role. According to this SDG, sustainable ocean development should be based on scientific knowledge. Moreover, the principle of sustainable development requires that economic development be balanced with environmental protection and human well-being. *Finally*, the precautionary approach calls for the adoption of measures to protect the oceans when there is a risk of serious environmental damage, the latter being assessed through scientific research. In case of scientific uncertainty, the question of whether a particular activity may endanger the environment is decided in favor of the environment.

All of this requires that domestic law on deep-sea mining be based on scientific knowledge. This is in line with the provisions of the Climate Framework Law and the Environmental Framework Law. The need to gather more knowledge on non-living resources is also expressed in the National Ocean Strategy 2021-2030.

In the case of deep-sea mining, scientists consider that scientific knowledge is not yet available to assess the actual impacts of deep-sea mining and the forms of minimizing them. Moreover, it is well known that deep-sea mining can have serious impacts on the marine environment. Therefore, the development of deep-sea mining at this stage while complying with the norms, principles, duties, and obligations for the protection of the sea that bind the Portuguese State seems doubtful.

PART V |

SECURITY DIMENSION AND THE JURISDICTION OF THE STATE

CHAPTER 15 |

ENSURING SECURITY OVER VAST MARITIME ZONES

Henrique Gouveia e Melo

A. Introduction

Portugal has a smooth coastline of about 2.500 kilometers with large river estuaries that provides excellent harbors and ocean connectivity. With an area of 1.7 million square kilometers—eighteen times the national territory—it has one of the largest EEZs in the world, encompassing a great diversity of ecosystems and resources. The Portuguese strategic triangle, which connects the Portuguese mainland with the archipelagos of Azores and Madeira, accounts for 48% of all maritime spaces under the jurisdiction of the EUMS in areas adjacent to the European continent. Moreover, the extension of the continental shelf beyond two hundred nautical miles, the delimitation process of which is underway with the United Nations, will increase the area of maritime territory under Portuguese sovereignty or jurisdiction to 4.1 million square kilometers—forty-four times the national territory and make Portugal even more Atlantic. It should also be noted that the area of responsibility is sixty-two times larger than the national territory.

From a territorial point of view, Portugal seems to be a small country on the periphery of Europe, but the reality is quite different when one considers its maritime dimension. Moreover, in the south of Portugal lies one of the most important chokepoints for the world economy, which connects the Mediterranean Sea with the Atlantic Ocean—the Strait of Gibraltar. Portugal is, therefore, from a maritime perspective, a country open to the world where the main SLOC connecting Northern Europe with the Mediterranean and the South and Central Atlantic converge and cross. Most of Europe's oil and raw materials are transported through these routes. It is worth mentioning that more than 60% of the trade flows of the Western world pass through the maritime areas under Portuguese sovereignty or jurisdiction. Therefore, such an area is, naturally,

desirable to control the SLOC from the Atlantic to the Mediterranean and from the South Atlantic to Europe. This space is also crucial for the interconnectedness of an archipelagic Portugal, which thus remains united and indivisible.

In addition, about 97% of intercontinental communications traffic—email, internet, telephone, financial transactions—are provided by submarine cables running through the vast maritime areas under Portuguese sovereignty or jurisdiction. In this respect, Portugal's strategic position is also reflected in the fact that it is the only country in the world with direct connections to all major continents—Europe, North and South America, Africa, and Asia—via submarine cables. Therefore, any disruptive action aimed at impairing or undermining their normal use—whether by terrorist groups or State actors—could have unforeseen consequences for the world economy and the regular functioning of the globalized world. Portugal therefore has a greater responsibility in the governance of the sea in terms of preserving resources and ensuring security and sustainable management. Ensuring continuous surveillance and the rule of law in this vast area are the basic requirements for the promotion of peace, good order, safety, and security by the coastal State, in accordance with the principles of international law, especially UNCLOS.

B. The Threats

The Atlantic Ocean is exposed to a number of risks and interferences that could affect Portugal's freedom of action and territorial integrity, as well as those of its allies. These risks and interferences make the security of the maritime space under national sovereignty or responsibility a key factor in Portugal's maritime strategy. The implosion of the Soviet Union and the subsequent disappearance of the substantial Soviet naval presence in the North Atlantic led to the hasty conclusion that control of the central Atlantic and the Azores archipelago had a reduced strategic importance as a key factor in safeguarding the freedom of movement and intercontinental North-Atlantic connectivity. However, recent security developments in the euro-Atlantic area have changed and are now reversing this strategic perception. They are taking the shape of new threats derived from competition in a multipolar international order, intensifying the importance and central role of the maritime areas under Portuguese sovereignty and jurisdiction.

Although it is reasonable to assume that challenges will focus on instability, economic competition, and access to resources rather than direct confrontations between military powers, we must bear in mind that the coercive use of military power in the central Atlantic must still be considered as a possibility.

1. *The submarine threats*

Given its strategic location, it would not be realistic to expect Western military superiority on land and in the air in the Portuguese strategic triangle to be surpassed or jeopardized by any State actor now or in the near future. Submarine threats, however, are entirely possible in this vast maritime space, regardless of its strategic position at the center of the North Atlantic Alliance and, therefore, represent the greatest military challenge in the area. As a result, recent strategic thinking by NATO and the European Union emphasizes the importance of developing anti-submarine warfare capabilities with the goal of avoiding potential disruptions to the SLOC and critical infrastructure, particularly submarine cables, with potentially devastating consequences for the security and economic development of societies.

The SLOC are also considered fundamental to force projection, sustaining, and supporting expeditionary force support, especially in remote theatres of operation. In the case of the North Atlantic, the security of the SLOC in a conflict situation with an opposing State actor is seen as a critical success factor for European military and logistical support. Furthermore, the development of the strategic potential of submarines in the field of technology has been increasingly advanced. We can observe that the capabilities of its weapon systems—advanced torpedoes, hypervelocity weapons, cruise missiles, anti-aircraft missiles—are increasing, making them even more dangerous and difficult to counter.

The characteristics of submarines and their strategic potential—including discretion and the ability to operate and survive in hostile environments and deny the adversary the use of the sea—enable the submarine threat to emerge without warning and with far-reaching consequences. Potential submarine targets are not limited to warships or merchant vessels, but can include critical infrastructure on land and on the seabed. Indeed, today's submarines are capable of threatening nearly every major capital city in Europe, as well as much of Europe's military and civilian infrastructure from a conventional perspective, and the entire planet from the perspective of a strategic nuclear strike.

So, we can see that the submarine threat—relegated to the background for a while—is once again a priority and a challenge not only for the Alliance as a whole, but especially for countries like Portugal, which have a vast maritime area of interest and need to make significant efforts to counter it. Anti-submarine capabilities that enhance the Portuguese Navy's surface, air, and robotic capabilities are considered essential to deterring the submarine threat that could compromise regional security in the Euro-Atlantic area and, ultimately, national independence and territorial integrity.

Portugal's contribution to the enhancement and security of the Atlantic Ocean is a common and significant thread throughout history, and it is undeniable that its anti-submarine capability—one of the fundamental factors in ensuring the maritime control and security of the SLOC—has made a critical contribution.

2. The "new threats"

As of September 11, 2001, a new paradigm of maritime security has emerged, and the international agenda has placed greater importance to the so-called *new threats*, commonly referred to as terrorism, illegal trafficking of people, arms, narcotics, irregular immigration, depletion of living and nonliving resources, deliberate harm to the maritime environment, and piracy. These transnational threats impact stability, security, and the global economy and deserve particular attention and concern at both national and international levels.

The particular vulnerability of the Portuguese coast to drug trafficking is a priority concern that requires the necessary surveillance and control over vast maritime spaces, as well as the integration of multiple and diverse sources of information and cooperation among state actors, to enable early detection and timely appropriate responses. These types of threats tend to be more difficult to detect and counter due to their diffuse and hybrid nature. They also blur the line between security and defense, as they require coordinated and articulated action by all actors. These threat characteristics require greater cross-sector action by navies, which must be organized in a collaborative, cooperative, and complementary manner in an international and interagency environment to achieve effective control over vast maritime spaces.

In this regard, the Portuguese Navy cooperates with the navies of like-minded and allied countries, with international organizations and with several national

and international agencies, developing an intense activity in the field of maritime security, especially in the areas of:

- (i) Protection of natural resources;
- (ii) Counter-drug operations;
- (iii) Border control and illegal migration;
- (iv) Counter-piracy operations;
- (v) Environmental protection;
- (vi) Response to natural and manmade catastrophes.

C. Strategic Framework

Portugal's vast maritime area gives it strategic depth, strengthens its independence, its external connectivity, and its relevance and role within the main alliances to which it belongs—NATO, the European Union, and the CPLP.

While the *Eastern perspective* conditions and limits Portugal's geostrategic importance, transatlantic relations, on the other hand, reinforce the Portuguese centrality. A brief historical analysis shows that Portugal's geostrategic value was and is deeply leveraged by the position and size of its maritime space. From a geostrategic perspective, three activities of great importance meet and overlap in Portugal's Atlantic centrality—the submarine cables, maritime traffic, and air routes. Furthermore, the country has developments centers in the North Atlantic, the CPSC, North Africa, and the Gulf of Guinea that promote the growth of commercial exchanges and provide access to new markets.

The safety and smooth flow of intense maritime traffic along the Portuguese coast are essential to the world economy and to the European market. It includes not only the routes connecting Northern Europe with the Mediterranean, including traffic from the major production centers in Asia—particularly China—but also the routes connecting the North with the South Atlantic, as well as shipping in and out of national ports, fishing, leisure, and cruise traffic. Their security depends primarily on avoiding surveillance deficits that could make the area a soft target, either in the eyes of non-State actors that exploit the use of the sea for illegal purposes or in the eyes of those who pursue to disrupt international maritime traffic by promoting maritime insecurity.

Another important aspect to consider is the protection of the submarine cable network that crosses the maritime areas under Portuguese sovereignty or jurisdiction. It is essential that cyber defense also include the physical security of the network, in order to protect it from both accidents and deliberate acts aimed at exploiting the dual vulnerability of the system—the growing dependence of societies on it and the openly accessible information about its position, path, and respective moorings on land.

From an economic perspective, the EEZ and the continental shelf represent a value that is still difficult to estimate, but certainly high, and in the future—probably before 2035—where technology will lead to the thorough—both profitable and sustainable—development, if properly prepared and executed, can transform and accelerate the national economy, strengthen the country's international position, and contribute significantly to the security and well-being of the population.

The process of expanding the continental shelf poses a challenge to Portugal. We need to grasp the full dimension of Portugal's geological and biological seabed resources, which will create scientific, technological, and economic opportunities associated with the rights to explore and exploit them. However, as these resources are internationally coveted, this may also pose a threat in a highly competitive world thirsty for resources.

Regarding security, the need to ensure collective security in the Euro-Atlantic area through a new initiative in the frameworks of NATO and the European Union underlines the importance of Portugal's role in maritime security towards its allies, its partners, and the international community in general, with a particular focus on the southwestern Europe.

The configuration of the Portuguese territory, the dimension of its maritime areas, and the national and allied interests require an ocean-going Portuguese Navy capable of occupying and dissuading non-legitimate or adversary interests, as well as acts contrary to international law, and also contributing to collective security in the immediate vicinity, *i.e.*, in the Central and South Atlantic, the Mediterranean Ocean, and the North Sea. Therefore, the Portuguese Navy must be holistic, useful, and meaningful with the capability to:

- (i) provide a credible and effective presence in the maritime areas under Portuguese sovereignty or jurisdiction, compatible with the vast area

and desired footprint, protecting national and allied interests from the perspective of defense, security and state authority;

- (ii) ensure the protection of national interests in the Portuguese strategic triangle, while contributing—proportionately and decisively—to the defense of country’s allies where critical interests and/or collective security are at stake, with a special focus on anti-submarine warfare and war robotization; and
- (iii) operate in the Central and South Atlantic, particularly in the Gulf of Guinea, bearing in mind Portugal’s historical ties to the region and the remit of the CPSC, contributing to the strategic, geopolitical, and geo-economic centrality of the country.

The strategic position of the maritime areas under Portuguese sovereignty or jurisdiction is considered essential for the freedom of action of the Western world, which is extraordinarily dependent on maritime trade and the Atlantic connection, as well as for any dispute over Eurasia.

D. A Dual Role Navy

The *mare liberum* is porous by nature, without effective control, where all kinds of human activity and all spectrums of interest coexist and intersect. A navy focused only on military activities cannot fully understand or grasp such a maritime environment. In a world increasingly dominated by hybrid, gray or unrestricted strategies and multiversal threats, a holistic navy that functions both as a traditional blue-water navy and as a coast guard must be better prepared and adapted than a strictly military navy. At sea, the model of action will be essentially transversal and holistic due to the nature of actors (State and non-State), phenomena (human and natural), and activities (economic, political, military, criminal, recreational, and others).

This *dual role* model—developed by the Portuguese Navy—is a successful concept with strong historical roots, synergistic and economically efficient. It is divided into two complementary, interconnected, and coexisting natures—one essentially military and one non-military based on a common foundation—including organizational, cultural, and resource roots, which include schools, training, maintenance, and supply structures that support both frameworks.

On the military side, the Portuguese Navy is responsible for the maritime perspective of national defence and for supporting the Portuguese foreign policy, which includes fulfilling international collective defence commitments, naval diplomacy, and safeguarding national interests abroad. In its non-military role, the Portuguese Navy performs traditional coast guard functions to ensure security and safety at sea, state authority, emergency response, and support to the maritime economy through maritime protection of maritime resources, pollution control, scientific research, and cultural development.

Small countries with limited resources face the impossibility of building and sustaining sufficiently effective navies, each focused on a particular part of the maritime activity. In addition, the duplication of State actors responsible for the sea will contribute to more incoherent and barely synchronized activities.

Given the disproportion between the challenges Portugal faces at sea, especially due to the vast maritime spaces under national sovereignty or jurisdiction, and the scarce resources available to occupy and control them, only a full-fledged rationalization of resources will lead to a adequate or increased likelihood of successfully meeting the challenges. Therefore, the Portuguese Navy must assume the operational functions of the State at sea to rationalize national resources and fulfill navy and coast guard missions within a postmodern model of holistic naval and maritime power. This model underlies the vision for the Portuguese Navy. An operational, useful, and meaningful navy is necessarily holistic, focused, and technologically advanced.

E. The Utility of the Portuguese Navy through Its Operational and Support Functions

From this dual role perspective, the Portuguese Navy must be able to perform six major functions:

- (i) *Presence*: in maritime spaces under national sovereignty or jurisdiction;
- (ii) *Deterrence*: preventing military and non-military use of the seas against national and allied interests;
- (iii) *Force projection*: capable of influencing directly and decisively, at sea and from the sea;

- (iv) *Command and control*: networked into the wider structure of the armed forces;
- (v) *Science*: in the areas of hydrography, cartography, oceanography and navigation;
- (vi) *Culture*: contributing to the preservation of national maritime identity.

Taken together, these functions strengthen Portugal's position as a maritime nation and as a major ally. They help reaffirm the importance of the oceans to the national economy while ensuring the functioning of an organic, interdependent, and highly sensitive system based on maritime trade, global communications, and maritime resources.

1. Presence

Through its *presence*, surveillance, monitoring, protection of resources, control of maritime space, and SAR, the Portuguese Navy ensures the maritime safety in spaces under Portuguese sovereignty or jurisdiction, protects national interests and fulfills international responsibilities. Of the twenty major oil spills that have occurred worldwide, four occurred on the west coast of the Iberian Peninsula. We can mention only one—the sinking of the oil tanker *Prestige* in 2002, which was carrying seventy-seven thousand tons of fuel oil on board, with the potentially harmful effects minimized by the *presence* and action of Portuguese Navy's ships.

The Portuguese Navy also deploys its capabilities in support of the population, including in providing assistance in the fight against drug trafficking and border control, thus ensuring support to other State actors in their internal security responsibilities at sea through its permanent *presence* in the territorial sea and national EEZ. Furthermore, this *presence* also aims to protect the lives of those who use the sea through their various activities. In this regard, 4,796 seafarers have been rescued in the last ten years by the Maritime Rescue Coordination Centers, under the Portuguese Navy. The success rate of the national maritime search and rescue service is over 99% and has made Portugal the world leader in this field.

On the other hand, IUU threatens ocean sustainability and biodiversity, as well as the economic livelihood of coastal populations and food security. In this context, the Portuguese Navy—in cooperation with other entities with

legal competence in this area—conducts several hundred inspections of fishing vessel each year—five-hundred and eighteen in 2021.

The Maritime Operations Centre—permanently staffed by the Portuguese Navy and the National Maritime Authority—is responsible for coordinating the above activities using naval, aerial and other information resources, the data from which are compiled and analyzed in decision support tools.

The *presence* of the Portuguese Navy is also critical in the area of cooperative security. It cooperates with and assists various Western African countries in combating the increasing illicit maritime activities in the Gulf of Guinea. In this context, Portugal participates in several initiatives to promote maritime security through various operations. In addition, either within the framework of the European Union and the United Nations, or bilaterally or multilaterally through alternative forums, it is also engaged in:

- (i) The Capacity Building of the Sao Tome and Principe Coast Guard, which has involved the permanent presence, since 2018 of a patrol vessel in that country, the *NRP Zaire*;
- (ii) The “*Mar Aberto*” Initiative, which encompasses naval missions along the West African coast. Typically, two deployments are carried out per year, one with a military profile and other with a scientific-hydrographic profile;
- (iii) The *Coordinated Maritime Presences* within the framework of the European Union, to which the Navy contributes with assets for significant periods throughout the year;
- (iv) The direct involvement of the Navy in the operationalization of the *Operational response and management of the Rule of Law at sea Under the Support to West Africa Integrated Maritime Strategy (SWAIMS)*, a project sponsored by the European Union.

Concerning information management, the compelling need to control large maritime areas under its sovereignty, jurisdiction, responsibility, or interest—and the need to be effective with limited maritime assets—requires the use of supportive informational tools to optimize the Portuguese Navy’s operational efficiency and effectiveness. It is paramount to continue to invest in credible and reliable maritime situational knowledge and state-of-the-art systems that support

the decision-making process by anticipating threats and risks to maximize the effectiveness of maritime operations.

The Portuguese Navy has partnered with a national company to develop a maritime operations support information system—the *OVERSEE*. It provides a situational overview through fusion algorithms and risk-anticipating capabilities using artificial intelligence techniques. The user interface is designed to make decision-making more efficient and collaborative, promoting rapid incident response and resource optimization. The knowledge gained about maritime situational can then be shared with other national and international agencies involved in the planning and execution of maritime security operations in a collaborative manner.

Last but not least, it is worth mentioning that the new tools of ocean observation, monitoring and intervention—such as unmanned or autonomous aerial, surface or underwater systems—with high endurance, resilience, and discretion, operating alone or in a group or network, will become a fundamental capability of the Portuguese Navy in a very short time. The vastness of the maritime areas under Portuguese sovereignty or jurisdiction and the fragmentation of its territorial spaces require the use of means that allow discrete detection and decision-making, taking advantage of new and disruptive technologies that can generate unprecedented synergies with corresponding effectiveness.

Portugal needs to invest heavily in robotization; as it is a smart, effective and affordable solution. In the maritime environment—and especially in the Portuguese strategic triangle—unmanned or autonomous systems could be an important pillar in the areas related to anti-submarine warfare, surface surveillance, reconnaissance, and intelligence gathering.

2. *Deterrence*

Through *deterrence*, the Portuguese Navy plays a central role in the defense of the country, avoiding the military and non-military use of the maritime areas under Portuguese sovereignty or jurisdiction against national and allied interests by denying, deterring, dissuading, or repelling potential adversaries. In this context, the submarine capacity is of particular value and crucial to prevent the use of the sea in times of tension or conflict.

For a country of Portugal's size, and with the responsibility that comes from its geostrategic location, submarines are the best military option. In conflict situations, they essentially act in an independent manner in the form of corsair warfare, but they can also be used to support surface forces, either to disrupt or wear down opposing forces or to protect national forces. They can conduct surgical surprise attacks on adversary coastal areas and discreetly infiltrate and support special operations forces. Submarines are critical to anti-submarine warfare, whether peacetime surveillance and tracking or in containment and destruction during times of tension or conflict. Submarines can also conduct precursor actions for amphibious operations. In peacetime, they discreetly gather intelligence information, even in highly contested areas. Their capabilities also allow them to monitor illicit activities over long periods of time. From this, it is possible to conclude that submarine capabilities are truly distinctive and have disproportionate power and importance both within alliances and against potential opponents.

In the field of *deterrence*, the contribution of the Portuguese Navy is particularly important in the context of NATO, as it performs various tasks that contribute jointly and cooperatively to the collective defense of the allied countries. We can list as examples of the Portuguese Navy's contributions to NATO in this regard:

- (i) the participation in the Standing Naval Forces since 1969, with the integration of at least one frigate per year for a period of four to six months;
- (ii) the Portuguese Navy's participation in assurance measures since 2014, including with the commitment of a force of marines—about one-hundred and forty military personnel—in Lithuania since 2018.

3. Projection

The *projection of force* or logistical capacity aims to deploy power and capabilities to any point in the Portuguese strategic triangle and from there to other maritime areas to protect national interests, provide humanitarian assistance, or evacuate populations. Through this function, the Portuguese Navy ensures cooperative and humanitarian security, guarantees operational readiness across the entire spectrum of military actions, and reaffirms Portugal's strategic importance as a player in the international system. This function is particularly important when thinking of the national diaspora to which it is necessary to bring aid or protection, especially from the sea, as was the case in 1998 with

Operation CROCODILO in the Republic of Guinea-Bissau, when 1.237 national and foreign citizens were evacuated to a safe territory.

It should also be noted that Portugal is exposed to the effects of meteorological and seismic phenomena that often occur in the Atlantic Ocean. The Portuguese Navy has a number of specialized capabilities to support the affected populations, including:

- (i) disaster relief;
- (ii) logistical transport;
- (iii) command and control (C2);
- (iv) hydrographic surveys;
- (v) medical support; and
- (vi) diving capabilities.

These capabilities have been mobilized in various situations, such as the flooding of Madeira Island in 2010 or the destruction of the Port of Flores by Hurricane Lorenzo in the Azores archipelago in 2019.

4. Support functions

The Portuguese Navy exercises and develops support functions based on *Command and Control*, *Science* and *Maritime Culture* in addition to multiplying the above operational functions.

- (i) Command and Control

The *C2 function*—command and control—has always been central to the military apparatus. It aims to ensure relevant situational awareness at all levels of the chain of command and to provide a common operational framework that enables faster and more effective decision-making. To this end, it must rely on a centralized, resilient, and networked *nervous system* that (i) is integrated into the broader structure of the Armed Forces' communications, sensor, and data systems; (ii) employs technologically advanced and innovative solutions; and (iii) supports the integration of new and disruptive technologies.

This function consists of operation centers and the corresponding information, network and communications structures that provide command and control

over surface and subsurface activities in the maritime areas under Portuguese sovereignty or jurisdiction and other areas where the Portuguese Navy may be employed. This should provide the commands involved with a common overview of maritime activities that will enable them to develop their actions at sea.

To maintain the *C2 function*—command and control—the Portuguese Navy must be able to operate under strong competition in cyberspace and electromagnetic spectrum, where attempts to disrupt networks and communications systems are constant. In the future, shore-based command centers, ships, aircrafts, drones and amphibious ground forces will be interconnected in a real time operational network—an *all-powerful brain*. This *hyper-neuronal brain*, in which sensors, computers, communications, software (networks), weapons, and humans interact, is already a reality. The goal is to achieve knowledge superiority by deciding and acting before the opponent. This desideratum is achieved by simultaneously feeding signals and information from all the sensors distributed in the operation theatres, combined with high analysis and processing capacities.

As a result of digitalization, broadband networks and interconnected systems, the amount of information available could plunge operators and decision makers into a state of negative confusion. More than ever, there will be a need to advantageously filter and correlate the information gathered in a way that is faster, safer, and more predictive than the adversary.

Within the various disciplines related to intelligence and battlefield surveillance, geospatial intelligence¹ will be paramount in future operations, as it is critical to those operating in contact-saturated geographic spaces. Only temporal analysis of the geographic behavior of platforms in operation theatres, coupled with the parameters of their emissions, can accelerate the cognitive process of decision makers. The historical record of such data, as well as data mining and artificial intelligence capabilities, will be critical in determining the typical behaviors of the adversary.

The security of Portuguese and allied data and information will be critical. Focusing on operations security and counterintelligence is certainly a clear sign of professionalism and operational maturity. These capabilities are essential to countering the adversary's attempts not only to influence perceptions of contested space by denying, disrupting, altering, and distorting available information, but

¹ Also known as *GEOINT*.

also to prevent seducing and corrupting the human element of the forces involved in the process.

The ability to maintain the *C2 function*—command and control—deny it to the enemy, or at least disrupt it, will prove essential in the coming conflicts, as it did in the past.

(ii) Science

The ability to occupy the maritime areas under Portuguese sovereignty or jurisdiction is essential for the defense of Portugal's national interests. This can be done (i) by defending and securing the maritime border, which is an undeniable vital interest; or (ii) by exercising the *power of knowledge*, which is one of the factors that contribute most to the development of national power.

The *science* that deals with the maritime environment is based, in particular, on (i) hydrography, cartography, oceanography, and navigation, all of which are essential for all maritime activities, including military operations; and (ii) the knowledge of the economic potential of the sea, which is fundamental for the subsequent exploitation of resources.

In this context, the first NATO Centre of Excellence on national territory was established in September 2020—the Maritime Geospatial, Meteorological and Oceanographic Centre of Excellence.² It aims to develop and test new products and services, as well as provide geospatial, meteorological and oceanographic information of great utility and high timeliness for the implementation of NATO or European Union naval operations. Also in this area, Portugal is investing in a multipurpose naval platform that will be acquired under the European Union's Recovery and Resilience Plan. It will contribute to (i) the knowledge, preservation and sustainable exploration of the ocean; (ii) direct support to the population in situation of crises; and (iii) strengthen the country's operational and scientific capabilities. It will also ensure maritime surveillance, SAR, and adequate response to maritime accidents, using mainly unmanned or autonomous systems to perform these tasks.

Scientific knowledge and control of the Portuguese areas of permanent strategic interest, which includes the national territory, the territorial waters, the

² Also known as *MGEOMETOC COE*. See, for more information, NATO, "Maritime GEOMETOC Centre of Excellence," <https://www.mgeometoc-coe.org/>, accessed December 13, 2022, <https://www.mgeometoc-coe.org/>.

EEZ, the continental shelf, and the SAR, are a *sine qua non* condition for the assertion of Portugal's geostrategic position on the Euro-Atlantic axis.

(iii) Maritime Culture

Regarding *maritime culture*, the Portuguese Navy develops activities that contribute to the preservation of Portuguese maritime history, heritage and identity, as well as to the better dissemination of knowledge about Portugal's oceanic strategic potential. This knowledge is important not only for supporting political decisions, but also for promoting ocean literacy, which helps raise awareness among current and future generations of the need to preserve the ocean and its resources and ensure its sustainable exploitation.

F. Conclusion

The world is in turmoil, and there are no certainties that would allow us to predict a future of stability and global prosperity. Portugal is not exempt of the dangers posed by external risks and threats. The Portuguese maritime space must be occupied and controlled to avoid a strategic vacuum that could be used against Portuguese and allied interests. The occupation of the maritime areas under Portuguese sovereignty or jurisdiction and the presence of a capable and useful Portuguese Navy are crucial to mitigate present and future risks.

It is critical to have a meaningful and dual-role navy capable of providing presence, deterrence, and projection of force both in the maritime areas under Portuguese sovereignty or jurisdiction and in its immediate vicinity, as well as contributing to national defense and promotion, Portuguese diplomacy, and collective security.

Portugal continues to rely on a naval force structure that allows it to respond flexibly to maritime challenges in its areas of interest. It is based on a strategy that aims to balance, in a context of reduced resources, the vision of the sea as a military space for defense and influence with a parallel vision of commitment to security, safety and state authority, and a space for economic, scientific, and cultural development that must be protected from opposing interests and threats.

For Portugal, the sea is not just a national project; but an essential part of (i) its history and survival needs; (ii) the conduct of its foreign trade; (iii) the importation of vital goods and energy; (iv) the exploitation and

procurement of natural resources; and (v) the maintenance of security, freedom of action and movement between the three parts of its territory—a key factor for national unity and cohesion and as such a vital interest.

The utility of the Portuguese Navy for the protection and promotion of the oceans is maximized through (i) a holistic approach with a comprehensive role in military and non-military areas; (ii) a *ready* navy based on a common core that supports the operational activity; (iii) a *useful* navy as an essential tool to confirm the geostrategic value of the maritime areas under Portuguese sovereignty or jurisdiction and an Atlantic Portugal; (iv) a navy *focused* on its mission to serve Portugal; (v) a *meaningful* navy in its capabilities; and (vi) a *technologically advanced* navy that empowers itself in the context of war robotization in areas such as unmanned systems, high-performance computing, and artificial intelligence.

To contribute to the protection and promotion of the oceans, the Portuguese Navy is deployed daily with around 1.000 military personnel and thirteen ships to provide presence, deterrence, and projection of force in maritime areas under Portuguese sovereignty or jurisdiction, as well as in several locations around the world, such as the Gulf of Guinea or the Mediterranean. Thus, “promoting and protecting Portugal’s interests on and through the sea”³ is now more than ever crucial to ensure stability and trust in trade, people and information flows, and to counter the various threats and risks that threaten human development on a global scale.

In short, the Portuguese Navy ensures (i) the defense of Portugal; (ii) the preservation of national sovereignty and jurisdiction; (iii) the preservation of resources that contribute significantly to national security. In addition, it is not only important for our partners, but also supports global stability and is capable to project security wherever national interests demand it and Portuguese citizens need it.

There are two things a nation cannot escape—its geography and its history. The sea has always been an important pillar in the history of Portugal. Therefore, the use of the sea is still today, as it was in the past, a great opportunity, but also a strategic challenge.

³ Portuguese Navy mission.

CHAPTER 16 |

THE USE OF PRIVATE MILITARY AND SECURITY COMPANIES IN A MARITIME SECURITY CONTEXT

Ana Costa Pereira

A. Introduction | Notes on the Western Legal History of Using Private Contractors in Naval Warfare and Maritime Security

Ensuring maritime security, which has widely been considered as a prerogative of a sovereign State, has recently been outsourced to private actors. However, hiring private guards or relying on their ships for naval warfare or maritime security operations—which in some instances might be as violent as naval warfare—is far from a new phenomenon.

In this context, the earliest examples in Western legal history of legally and politically sanctioned authorizations for the use of force by private actors at sea can be traced back to the Middle Ages, with Portugal as an interesting case-study. As explained in this section, the legal mechanisms that emerged to legitimize and legalize those authorizations would be instrumental in shaping territorial and extraterritorial sovereignty, thus crucially influencing contemporary law of the sea, including UNCLOS.

1. Privateering and reprisals: early (and profitable) outsourcing practices

In Medieval Europe, military, political, and economic motives prompted monarchs to resort to privateering as a lawful means to ensure maritime—and economic—security and to save the extreme costs of building and maintaining standing national navies to wage war or plunder to cover war losses. For shipowners, seafarers, merchants, renegades, and nobles, privateering became an interesting option whenever war paralyzed their usual economic or

professional activities:¹ the earnings of privateering were shared between the monarch and the privateers—that might include the shipowner, the ship captain, the guards/seafarers, and/or others.

Legal historians usually distinguish between two legal mechanisms for authorizing the use of force by private actors at sea: privateering and reprisals. Reprisals under *Jus Gentium* and classical public international law, *i.e.*, the “Westphalian International Law,” are reprisals among subjects of different (proto-)States, rather than between public powers. This legal mechanism acknowledged that, if the perpetrator of an unlawful act could not be found responsible for it, the injured party had the right to demand compensation from a third-party who was somehow related to the perpetrator.²

During the Middle Ages, there seems to have been a clear legal distinction between reprisals and privateering: reprisals were authorized by means of a *letter of marque* as a non-amicable way of avoiding war, *i.e.*, authorizing the use of force, during peacetime, by individuals looking for compensation for damages they had previously suffered, and ensuring their action was limited to obtaining such compensation. On the other hand, privateering meant that an authorised private entity could effectively practice acts of war based on a *letter of privateering*.³

Both the *letter of privateering* and the *letter of marque* were the cause and measure for privateering or reprisal activities. They were also important documents for the private actors to prove that their actions were lawful, as authorized by the monarch. In early letters of privateering, monarchs took great care in exposing their motives and legal reasoning for the use of that legal mechanism—resorting to arguments of Natural Law and *Jus Gentium*.⁴ With time, reprisals and privateering came to be increasingly confused, mainly due to the practice by monarchs of bestowing *letters of marque* and *letters of privateering* irrespectively of their scope and purpose,⁵ ultimately sanctioning maritime predation irrespectively of whether it took place during peacetime or wartime.

¹ M. T. Ferrer i Mallol, “Corso y Piratería Entre Mediterráneo y Atlántico En La Baja Edad Media,” in *La Península Ibérica Entre El Mediterráneo y El Atlántico Siglos XIII-XV* (Consejo Superior de Investigaciones Científicas (CSIC), Institución Milá y Fontanal, 2006), 266–78, <https://digital.csic.es/handle/10261/23799>.

² Ruy de Albuquerque, *As Represálias: Estudo de História do Direito Português (sécs XV e XVI)*, vol. I e II (Lisboa, 1972), 76–77.

³ J.S. Fernandes, “O Corso e a Sua Relação Com a Pirataria” (Faculdade de Direito da Universidade de Lisboa, 2009), 7.

⁴ Ferrer i Mallol, “Corso y Piratería Entre Mediterráneo y Atlántico En La Baja Edad Media,” 257.

⁵ Fernandes, “O Corso e a Sua Relação Com a Pirataria,” 6.

European monarchs thus sowed the seeds of a proliferation of violence at sea for profit: in peacetime, they would abusively bestow *letters of marque* to justify actions amounting to piracy, while during wartime they would bestow *letters of privateering* to compensate for trade losses.

Intriguingly, recent legal literature on the use of PMSCs in maritime security suggests recovering the use of *letters of marque*, arguing that such authorization for private individuals to act on behalf of a government could allow governmental control while also offering a solution to avoid the violation of Article 107 of UNCLOS.⁶

2. *In the eye of the beholder: privateers or pirates? Late privateering and the ultimate equation to mercenarism and piracy*

The privateer was an agent or delegate of the contracting monarch, acting on his or her behalf. As such, the privateer held an authorization for the use of force that made him or her a lawful combatant under the laws of war—*jus in bello*—ensuring the king’s public authority at sea, whilst the pirate was seen as a rebel to the very same public authority.⁷ The legal status of the privateer was that of one who complied with specific laws of war, as established on an official license for privateering, whilst the pirate was a simple “sea thief”—the *hostis humani generis*, dating back to Roman Law.⁸

However, when it came to maritime predation, there were hardly any practical differences between privateering and piracy. Consequently, the same violent act at sea could be deemed lawful from the point of view of the privateer and its contracting monarch and unlawful from the point of view of those against whom a privateering order was issued.⁹ Notwithstanding those—unsurprising—differences, privateers were generally seen—at least for a few centuries in Western Legal History, up to the mid-seventeenth century—as legitimate agents of public power, completely opposed to piracy. Nevertheless, increased tensions in the legal

⁶ See, Section B below. See also, Vanessa Zhender, “Private Maritime Security Companies v. Pirates: The Battle of Legality” 33, No. 1 (2018): 353.

⁷ Ferrer i Mallol, “Corso y Piratería Entre Mediterráneo y Atlántico En La Baja Edad Media,” 256; António Pedro Barbas Homem, *História Das Relações Internacionais: O Direito e as Concepções Políticas Na Idade Moderna*, Almedina, 2, 2010, 217–18.

⁸ Ferrer i Mallol, “Corso y Piratería Entre Mediterráneo y Atlántico En La Baja Edad Media,” 256–57.

⁹ Ferrer i Mallol, 257.

interpretation of privateering and piracy rose as early as late fifteenth century with the Second Scholasticism, including in the works of Francisco de Vitória and Francisco Suárez. Their legal views were inspired by the treaties concluded between Castille and Portugal to put an end to territorial disputes concerning the so-called *New World*—the 1479 Treaty of Alcáçovas and the 1494 Treaty of Tordesillas—which established the principle of *mare clausum*, dividing world sea sovereignty between the two kingdoms. Consequently, ships and crews that were neither subjects of the Crown of Portugal nor of the Crown of Castille could easily be deemed as *pirates*.

These tensions caused disputes between European sea powers over the emerging doctrines promoting freedoms of navigation, exploration, and commerce—mainly Protestant doctrines. Those doctrines tended to fuel religious differences between the European Catholic and Protestant factions and played a part in turning political and religious tensions into a full-scale war between 1618 and 1648—the Thirty Years War.

Predictably, the treaties concluded at the end of the Thirty Years War—collectively referred to as the Peace of Westphalia—renounced and outlawed privateering.¹⁰ The Peace of Westphalia is generally accepted as the mark of an evolution from a *Law of Peoples*—*Jus Gentium*, a law focused on the natural rights of the individual—to a *Law of States*—a law applicable to States by States. In Europe, the sovereign State finally emerged as an independent subject of international law, *i.e.*, neither subject to the spiritual power of the Pope nor the temporal power of the Holy Roman Empire. Westphalia therefore kicks off a secular international law, under the principle of political balance, which was based on a constant mutual vigilance between States, and the principle of legal equality between States. These principles led to the creation of the notions of territorial and extraterritorial sovereignty and promoted public distrust in privateering—and mercenarism—as a dishonorable occupation. The Golden Age of Piracy—between late-seventeenth century and the 1730s—only contributed to furthering this general discomfort of sovereigns, public officials, and the public with private actors using force at sea.

Falling into disuse, privateering suffered its final blow by nineteenth century nationalisms and the creation of standing, professional national armies and navies.

¹⁰ R. Steenhard, “Pirates, Buccaneers and Privateers: Concepts of International Law,” 2019, <https://peacepalacelibrary.nl/blog/2019/pirates-buccaneers-and-privateers-concepts-international-law>.

Over two hundred years after the Peace of Westphalia, the 1856 Declaration Respecting Maritime Law would proclaim the absolute abolition of privateering at the international level, no longer distinguishing it from piracy.¹¹ The latter—an annex to the Treaty of Paris, which formalized peace talks in the post-Crimean War—also established safeguards for ships flying a neutral flag (extended to goods carried on board) and outlawed the arrest of neutral goods, except those obtained from contraband of war.¹² And even though it failed to gather support from certain key States—such as the United States of America¹³—the Declaration was quickly signed by sea powers that had formerly resorted to large-scale privateering, including Portugal, Spain, France, Prussia, and the United Kingdom of Great Britain and Northern Ireland.

The codification of the laws of war at sea, achieved between the late nineteenth century and the first half of the twentieth century, confirmed the trend of naval warfare between national navies. From then on, and up until the second half of the twentieth century, the lawful use of force, on land or at sea, became reserved for State actors and exercised through its armed forces or security forces.

3. Military and security freelancers and contractors in the latter half of the twentieth century to nowadays: from legal and moral outcasts to esteemed entrepreneurs

The trend of restrictions on the use of force started with the 1899 Hague Convention of the end of the nineteenth century and evolved into the prohibition of the use of force in international relations and its heavily regulated exception—the right to self-defense—under the Charter of the United Nations. This fact, combined with the extensive codification and progressive development of IHL with the four 1949 Geneva Conventions, as well as their two 1977 Additional Protocols, led to a gradual and combined legal trend of outlawing the unauthorized, non-defensive use of force, while imposing restrictions on that use when lawful. Such restrictions included the choice of forces to take part in hostilities, with a

¹¹ Lucas Bento, “Toward an International Law of Piracy Sui Generis: How the Dual Nature of Maritime Piracy Law Enables Piracy to Flourish,” 2011, 402, <https://lawcat.berkeley.edu/record/1124429>; Zhender, “Private Maritime Security Companies v. Pirates: The Battle of Legality,” 349. Steenhard, “Pirates, Buccaneers and Privateers: Concepts of International Law.”

¹² Fernandes, “O Corso e a Sua Relação Com a Pirataria,” 23.

¹³ Steenhard, “Pirates, Buccaneers and Privateers: Concepts of International Law.”

distinction between lawful combatants and unlawful combatants—among them mercenaries. In short, even though States retained a right to choose and use lawful means and methods of warfare as they saw fit, international law in the latter half of the twentieth century increasingly posed serious limitations to the use of force in international relations from the perspectives of *jus ad bellum* and *jus in bello*.

In addition to legal factors, important deterrents for States to rely on private contractors were their interests in building reliable and ready-to-launch armed forces during the second half of the twentieth century due to military tendencies of the Cold War. Along with the arms race, there was also a race for increasing the number of persons on active duty in the armed forces and paramilitary forces. Interestingly, this surge in military personnel, followed by their massive unemployment waves at the end of the Cold War, is one of the factors that explains the rise of PMSCs in the late twentieth century and early twenty-first century.

The principle of the prohibition of the use of mercenaries found progressive development and codification throughout the twentieth century. In the 1960s and 1970s, resolutions by the Security Council¹⁴ and the General Assembly¹⁵ tackled the issue of mercenarism from the point of view of a threat to the rule of law and the full enjoyment of human rights, including the right of a people to self-determination. In 1977, two important international legally binding instruments on mercenarism were adopted, only a few weeks apart: the Additional Protocol I, and the OAU Convention. Article 47 of Additional Protocol I establishes the conditions for qualifying as a mercenary, stating that they shall be unlawful combatants, and are therefore excluded from the special protection of prisoners of war.¹⁶ This definition rests upon a moralization of the

¹⁴ See, for example, Security Council resolution 239, S/RES/239 (1967), available at [undocs.org/en/S/RES/239\(1967\)](https://undocs.org/en/S/RES/239(1967)) and Security Council resolution 405, S/RES/405 (1977), available at [undocs.org/en/S/RES/405\(1977\)](https://undocs.org/en/S/RES/405(1977)), both of which addressed the issue of the use of mercenaries to overthrow governments in the Democratic Republic of the Congo in 1967 and the People's Republic of Benin in 1977.

¹⁵ More notably, resolutions of the General Assembly concerning the right to self-determination in the context of the decolonization of Africa and condemning the use of mercenaries against movements for national liberation and independence. See, for example, General Assembly resolution 2465(XXIII), *Implementation of the Declaration on the Granting of Independence to Colonial Countries and Peoples*, A/RES/2465(XXIII) (December 20, 1968), available at [undocs.org/en/A/RES/2465\(XXIII\)](https://undocs.org/en/A/RES/2465(XXIII)); General Assembly resolution 2548(XXIV), *Implementation of the Declaration on the Granting of Independence to Colonial Countries and Peoples*, A/RES/2548(XXIV) (December 11, 1969), available at [undocs.org/en/A/RES/2548\(XXIV\)](https://undocs.org/en/A/RES/2548(XXIV)); General Assembly resolution 2708(XXV), *Implementation of the Declaration on the Granting of Independence to Colonial and Peoples*, A/RES/2708(XXV) (December 12, 1970), available at [undocs.org/en/A/RES/2708\(XXV\)](https://undocs.org/en/A/RES/2708(XXV)).

¹⁶ See, Article 47 of the Additional Protocol I to the 1949 Geneva Conventions.

motivations of the mercenary—a *desire for private gain*—a fatal flaw considering that the requirements in the definition are cumulative, and that motivation is very hard to prove. The OAU Convention follows the same definition as that included in Additional Protocol I.¹⁷ However, it adds other requirements to describe the elements for the crime of mercenaryism:¹⁸ to qualify as an offender, one must resort to one or more acts of mercenarism listed in the OAU Convention and do so with the view of opposing by armed violence a process of self-determination stability or the territorial integrity of a State. As such, even if one is proved to be a mercenary under paragraph 1, which is unlikely, that person may not be committing the crime of mercenaryism as provided in paragraph 2.

Difficulties with the definition of “mercenary” resurfaced in the International Convention against the Recruitment, Use, Financing, and Training of Mercenaries,¹⁹ given that, at the time of its adoption in 1989, the private military and security landscape had begun to shift, and that upon its entry into force in 2001, the trend of governments contracting PMSCs had already rendered it practically obsolete.

As the services of PMSCs were mostly land-based, maritime activities did not receive much attention until the latter half of the 2000s. At that point, the outsourcing of maritime military and security operations that characterized Western history until the nineteenth century would make a significant comeback. This especially happened in hotspots of piracy and armed robbery against ships, and it began as a response of shipping companies to a surge of piracy off the coast of Somalia.

B. Private Military and Security Companies as Maritime Security Actors vis-à-vis UNCLOS

Although this has not always been the case,²⁰ modern commercial vessels traveling in waters at greatest risk of pirate attack have typically relied on the protection of the world’s navies.²¹ In the late 2000s, outsourcing maritime security

¹⁷ See, Article 1(1) of the OAU Convention.

¹⁸ See, Article 1(2) of the OAU Convention.

¹⁹ General Assembly resolution 44/34, *International Convention against the Recruitment, Use, Financing, and Training of Mercenaries*, A/RES/44/34 (December 4, 1989), available at undocs.org/en/A/RES/44/34.

²⁰ See, Section A above.

²¹ Y.M. Dutton, “Gunslingers on the High Seas: A Call for Regulation,” in *Duke Journal of Comparative & International Law*, 24 (2013): 108.

made an interesting comeback, mainly due to constant and violent pirate attacks off the coast of Somalia. This situation in the Gulf of Aden from 2008 to about 2020 showed that “[...] modern-day pirates have evolved into highly organized groups of individuals capable of quickly seizing some of the largest ships available.”²²

1. Current major threats to regional and global maritime security: piracy and armed robbery against ships

The current universally accepted legal definition of piracy, including as customary international law, is found in Article 101 of UNCLOS.²³ It is inspired by the definition contained in the 1932 Harvard Draft Convention on Piracy and the 1958 Geneva Convention on the High Seas.²⁴ Piratical acts also fall under other international legally binding instruments, such as the SUA Convention, the main purpose of which is to fight terrorism.²⁵ Under UNCLOS, “piracy” means any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and conducted on the high seas or in any other place outside the jurisdiction of any State.²⁶ The same provision of UNCLOS establishes other acts as piratical acts, namely (i) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft and (ii) any act of inciting or intentionally facilitating other piratical acts.

Aware of unlawful acts akin to piracy happening in maritime zones under the sovereignty or jurisdiction of sovereign States, the IMO developed the concept of “armed robbery against ships.” In particular, Paragraph 2.2 of the Annex to the Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery Against Ships²⁷ defines armed robbery against ships as (i) any illegal

²² J. Harrelson, “Blackbeard Meets Blackwater: An Analysis of International Conventions That Address Piracy and the Use of Private Security Companies to Protect the Shipping Industry,” *American University International Law Review* 25, No. 2 (2010): 285, <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1070&context=auilr>.

²³ Harrelson, 291.

²⁴ Mazyar Ahmad, “Maritime Piracy Operations: Some Legal Issues,” *Journal of International Maritime Safety, Environmental Affairs, and Shipping* 4, No. 3 (July 2, 2020): 62.

²⁵ Harrelson, “Blackbeard Meets Blackwater: An Analysis of International Conventions That Address Piracy and the Use of Private Security Companies to Protect the Shipping Industry,” 292.

²⁶ See, Article 101 of UNCLOS.

²⁷ IMO Assembly resolution A.1025(26), *Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery Against Ships*, A 26/Res.1025 (January 18, 2010), available at [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1025\(26\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1025(26).pdf).

act of violence or detention or any act of depredation, or threat thereof, other than an act of piracy, committed for private ends and directed against a ship or against persons or property onboard such a ship, within a 'State's internal waters, archipelagic waters and territorial sea; or (ii) any act of inciting or intentionally facilitating an act described above.

Piracy and armed robbery against ships primarily harm the individuals traveling on attacked ships but also threaten the whole of the world economy and global trade, as 90% of the world's traded goods move by sea.²⁸ Moreover, these acts can have other negative effects, subject to regional specificities—in the case of the Gulf of Aden, one such effect was the impairment in the delivery of humanitarian assistance to the Horn of Africa.²⁹

2. A popular solution: Private Military and Security Companies

The international community reacted in numerous ways to the increase of piratical acts in the late 2000s.³⁰ Yet many such actions were measures to bring increased security to high-risk areas rather than legal solutions to piracy.³¹ In the High-Risk Area of the Western Indian Ocean, ships from the combined naval force of the European Union—Operation Atalanta—and NATO have been active for over a decade in counterpiracy missions.³² Their efforts were combined with security models put in place by the shipping industry, from privately contracted maritime security—embarked private security force personnel hired by the shipping industry—to Vessel Protection Detachments—uniformed military personnel embarked on a vessel with explicit approval of the flag State—and coastal State embarked personnel (embarked armed personnel originating from the coastal State, based on arrangements—the prevailing model of embarked maritime security in the Gulf of Guinea).

In the Western Indian Ocean, the most sought-after model was that of privately contracted maritime security, *i.e.*, procuring the services of PMSCs.

²⁸ Dutton, "Gunslingers on the High Seas: A Call for Regulation," in *Duke Journal of Comparative & International Law*, 114.

²⁹ Dutton, 114.

³⁰ See, Section B(1) above.

³¹ Harrelson, "Blackbeard Meets Blackwater: An Analysis of International Conventions That Address Piracy and the Use of Private Security Companies to Protect the Shipping Industry,"

³² Dutton, "Gunslingers on the High Seas: A Call for Regulation," in *Duke Journal of Comparative & International Law*, 115.

In the words of the Montreux Document, PMSCs are “private business entities that provide military and/or security services, irrespective of how they describe themselves,” whose “[m]ilitary and security services include, in particular, armed guarding and protection of persons and objects, such as convoys, buildings and other places; maintenance and operation of weapons systems; prisoner detention; and advice to or training of local forces and security personnel.” In this chapter, PMSCs³³ will designate any form and model of private armed security personnel, and/or military personnel, present on board a ship for its protection, as well as that of persons and goods sailing in it. This is without prejudice to the variety of non-armed services PMSCs also offer to their clients, such as training, communications, *in loco* or remote surveillance, and consulting.

Even though the so-called *floating armouries* are not a separate model of private armed security themselves, they have played a vital role in supporting the activities of PMSCs in the maritime context. *Floating armouries* are vessels providing offshore storage of weapons, ammunition, and security equipment, and are a recent development arising from the logistical needs of private maritime security companies engaged in the protection of commercial ships from pirate attacks.³⁴

In time, the protection of merchant ships from security threats like piracy and armed robbery at sea became one of the top business sectors of the PMSC industry, as “insurance companies offer significant discounts to vessels employing armed security when traveling through areas that pose a high risk of pirate attack.”³⁵ However, shipowners are not free to simply allow PMSCs to embark onto their ships. Indeed, the flag State is the only State of the nationality of a ship, which—save for exceptions under UNCLOS or under other applicable international legally binding instruments—shall be subject to that State’s exclusive jurisdiction on the

³³ Other acronyms also used in this context include *PMSCs*, standing for *Private Maritime Security Companies*, and *PCASPs*, as in *Privately Contracted Armed Security Personnel*. These companies can operate in situations of armed conflict—even if coincidentally, for example, should the effects of an armed conflict spill over to the vicinity of where the company is undertaking maritime security operations—and/or pursue concurrent business niches related to their maritime activities. As such, the term *Private Military and Security Companies* seems a more wide-ranging and thus preferable one to refer to companies operating in maritime environments.

³⁴ United Nations Office on Drugs and Crime, “Handbook on the Use of Force by Private Security Companies, Annex B to “Maritime Crime: A Manual for Criminal Justice Practitioners,” 2020, https://www.unodc.org/documents/Maritime_crime/19-02086_Private_Security_Company_Handbook_Maritime_Crime_ebook.pdf.

³⁵ Dutton, “‘Gunslingers on the High Seas: A Call for Regulation,’ in *Duke Journal of Comparative & International Law*,” 119.

high seas.³⁶ In addition, the flag State has the obligation to effectively exercise its jurisdiction and control in administrative, technical, and social matters over ships flying its flag, as well as over their shipmaster, officers, and crew.³⁷

Thus, depending on applicable national laws and consistent with international law, the flag State has a general prerogative to decide on the use of PMSCs on board ships flying its flag.³⁸

3. Main legal specificities (and challenges) related to the use of PMSCs in maritime security

The operations of PMSCs in a maritime context entail several specificities and concerns,³⁹ when compared to their land-based equivalents. Among those, there is the different type or nature of PMSCs activities at sea: while the land-based (military and security) operations of these companies are more focused on armed conflict, their maritime counterparts are predominantly security-based. Consequently, there are different applicable international legal sources to the maritime operations of PMSCs—mostly conventional or customary norms of IHRL, the law of the sea, international criminal law, and much more rarely IHL.⁴⁰

Other specificities of PMSCs operating at sea are the especially complex interplay between the (many) State actors and non-State actors involved, and the greater difficulty for States to monitor PMSCs' activities in maritime scenarios.⁴¹ The high number of applicable jurisdictions in the maritime context, *e.g.* those of the flag State, coastal States, port States, States of the nationality of perpetrators and/or victims of acts of piracy or armed robbery against ships, is prone to jurisdictional overlaps and conflicts, although legal and jurisdictional gaps also do occur.

The very status of security personnel deployed on merchant ships for anti-piracy protection, depending on the chosen private security model,⁴² is not

³⁶ See, Articles 1 and 92(1) of UNCLOS.

³⁷ See, Article 94(1) of UNCLOS.

³⁸ Chair of the Maritime Working Group of the Montreux Document Forum (Portugal), "Reference Document: Elements for a Maritime Interpretation of the Montreux Document," 2021, 5, https://www.montreuxdocument.org/media/pdf/reference_document.pdf.

³⁹ See, Subsection C(2) below.

⁴⁰ Chair of the Maritime Working Group of the Montreux Document Forum (Portugal), "Reference Document: Elements for a Maritime Interpretation of the Montreux Document," 6.

⁴¹ Chair of the Maritime Working Group of the Montreux Document Forum (Portugal), 5.

⁴² See, Section B(2) above.

without controversy:⁴³ the lack of an easy distinction between State-led anti-piracy activities *stricto sensu* and private security services can seriously impair a correct and non-abusive application of the immunities of warships on the high seas and of ships used only on government non-commercial service.⁴⁴ In short, certain actions by maritime security actors could increase violence at sea and negatively impact human rights, in a legally uncertain environment with unregulated armed maritime security teams and a lack of awareness of existing regulations.⁴⁵

The *Enrica Lexie* incident is one such example.⁴⁶ *Enrica Lexie* was an Italian privately owned oil tanker under Italian flag *en route* from Singapore to Djibouti in February 2012 off the Indian Coast. Two Italian marines deployed on board for security, mainly acting as anti-piracy escorts, mistakenly took a small boat—the *Saint Anthony*—for a pirate vessel when it started approaching the *Enrica Lexie*. Believing the latter was under pirate attack, they fired against the *Saint Anthony*, killing two Indian fishermen on board, injuring other crew members, and damaging the ship. Indian authorities intercepted the *Enrica Lexie* off the coast of Kerala and compelled it to dock, where the two Italian marines were arrested and charged with homicide. The failed diplomatic talks that ensued between Italy and India resulted in the incident reaching the Permanent Court of Arbitration in the 2013. The arbitral tribunal rendered its arbitral award on May 21, 2020.⁴⁷

The very lawfulness of the use of force by PMSCs to counter violent threats in maritime zones under the sovereignty or jurisdiction of a State other than the flag State raises doubts about the proper interpretation and implementation of UNCLOS. In the case of piracy off the coast of Somalia, the Security Council, through repeated resolutions under Chapter VII of the Charter of the United Nations,⁴⁸ authorized the use of force in counterpiracy and counter-

⁴³ Marco Odello, “The *Enrica Lexie* Incident and the Status of Anti-Piracy Security Personnel on Board,” *Journal of Conflict and Security Law* 26, No. 3 (December 8, 2021): 553.

⁴⁴ See, Articles 95 and 96 of UNCLOS.

⁴⁵ Chair of the Maritime Working Group of the Montreux Document Forum (Portugal), “Reference Document: Elements for a Maritime Interpretation of the Montreux Document,” 5.

⁴⁶ Odello, “The *Enrica Lexie* Incident and the Status of Anti-Piracy Security Personnel on Board.”

⁴⁷ The “*Enrica Lexie*” Incident (The Italian Republic v. The Republic of India), PCA Case No. 2015-28, Award, dated May 21, 2020.

⁴⁸ The first of which was Security Council resolution 1816, *Adopted by the Security Council at its 5902nd meeting, on 2 June 2008*, S/RES/1816 (2008), available at [undocs.org/en/S/RES/1816\(2008\)](https://undocs.org/en/S/RES/1816(2008)). The last of which was Security Council resolution 2632, *Adopted by the Security Council at its 9044th meeting, on 6 May 2022*, S/RES/2632 (2022), available at [undocs.org/en/S/RES/2632\(2022\)](https://undocs.org/en/S/RES/2632(2022)).

armed-robbery efforts in that region between 2008 and mid-2022.⁴⁹ On the contrary, no such authorizations were issued concerning other piracy and armed robbery hotspots, like the Gulf of Guinea—where certain coastal States openly oppose the use of PMSCs. There are reports of such States seeking to prevent the exercise of a ship’s right of innocent passage through their territorial sea,⁵⁰ as PMSCs seldomly store and carry firearms on board the ships they protect. Indeed, the passage of a ship engaging in any exercise or practice with weapons of any kind is prejudicial to peace, good order, or security of the coastal State. This precludes the right of innocent passage, so coastal States may lawfully prevent the passage.⁵¹ Under its limited right to do so,⁵² coastal States may adopt rules affecting the operations of PMSCs, such as customs laws on arms on board.

All the concerns and specific challenges regarding the use of PMSCs in maritime security as described above, *i.e.*, in counterpiracy or counter-armed-robbery activities, have fueled legal and practical debates. Cooperative solutions have predominantly been found through the development of concrete guidance on maritime-active PMSCs; the most pertinent examples are those directed to States, international organizations, shipowners, and/or PMSCs themselves.

C. Highlights in Guidance Concerning PMSCs in the Maritime Context

Some authors argue that international law has failed to adapt to and address the many challenges resulting from modern-day piracy,⁵³ as well as the use of PMSCs in maritime security. Accordingly, in the face of unregulated and violent interactions between pirates and PMSCs and the lack of State interference,⁵⁴ States, international organizations and PMSCs have turned to non-legally binding international standards and acknowledged good practices to tackle the many legal and practical challenges arising from the use of PMSCs in maritime

⁴⁹ Dutton, “‘Gunslingers on the High Seas: A Call for Regulation,’ in *Duke Journal of Comparative & International Law*,” 115–16.

⁵⁰ See, Articles 17 to 26 of UNCLOS.

⁵¹ See, Article 19(2)(b) of UNCLOS.

⁵² See, Article 21 of UNCLOS.

⁵³ Harrelson, “Blackbeard Meets Blackwater: An Analysis of International Conventions That Address Piracy and the Use of Private Security Companies to Protect the Shipping Industry,” 285.

⁵⁴ Zhender, “Private Maritime Security Companies v. Pirates: The Battle of Legality,” 353.

security. This section highlights some of the most successful and comprehensive examples of guidance, as well as recommendations.

1. IMO's Interim Guidance and the Best Management Practices aimed at complementing it

Within the IMO, the use of PMSCs⁵⁵ in maritime security is followed by the MSC, whose position on the matter has evolved throughout the years, as seen in relevant MSC's circulars on interim guidance.

In 1993, MSC/Circ. 623 noted that “the carrying and use of firearms for personal protection or protection of a ship is strongly discouraged”. In 2009, it further noted that “[...] flag States should strongly discourage the carrying and use of firearms by seafarers for personal protection or for the protection of a ship.”⁵⁶ Currently, the position of the MSC is one of “tacitly acknowledging that the deployment of armed security personnel on board ships has become an accepted industry and flag state practice in certain circumstances.”⁵⁷

Nevertheless, the IMO continues to maintain that it does not endorse the use of PMSCs, having merely adopted a pragmatic approach to this phenomenon, issuing recommendations regarding the use of PMSCs in the High-Risk Area in the Western Indian Ocean. Hence, the MSC has issued relevant and successive interim guidance addressed to (i) PMSCs, (ii) shipowners, ship operators, and shipmasters, (iii) the flag States, and (iv) ports and the coastal States. The IMO, together with the ISO, submitted standards on the provision of PCASPs on board ships, the latest of which is *Ships and marine technology – Guidelines for Private Maritime Security Companies (PMSC) providing privately contracted armed security personnel (PCASP) on board ships (and pro forma contract)*.⁵⁸

⁵⁵ IMO prefers to use the term PCASPs. See, Section B(2) above.

⁵⁶ Maritime Safety Committee of the IMO circular MSC.1/Circ.1333, Piracy and Armed Robbery against Ships. Recommendations to Governments for preventing and suppressing piracy and armed robbery against ships, MSC.1/Circ.1333 (June 26, 2009), available at <https://wwwcdn.imo.org/localresources/en/OurWork/Safety/Documents/MS-C.1-Circ.1333-Rev.1%20-%20Recommendations%20to%20Governments%20for%20preventing%20and%20suppressing%20piracy%20and%20armed.pdf>.

⁵⁷ IMO, “Interim Guidance to Private Maritime Security Companies Provided Privately Contracted Armed Security Personnel on Board Ships in the High-Risk Area,” 2012, <https://wwwcdn.imo.org/localresources/en/OurWork/Security/Documents/MS-C.1-Circ.1443.pdf>.

⁵⁸ International Organization for Standardization, *Ships and marine technology - Guidelines for Private Maritime Security Companies (PMSC) providing privately contracted armed security personnel (PCASP) on board ships (and pro forma contract)*, ISO 28007-1:2015 (April 2015), available at <https://www.iso.org/standard/42146.html>.

In addition, the most recent edition of *Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean and Arabian Sea (BMP5)* also aims to complement the counterpiracy guidance found in MSC circulars. It was edited and supported by a consortium of over 30 international actors from both the public and private sectors. These entities represented the interests of (i) the shipping industry;⁵⁹ (ii) maritime workers associations;⁶⁰ (iii) international organizations;⁶¹ and (iv) international cooperation platforms and initiatives for countering piracy and armed robbery in that region.⁶²

2. The Montreux Document and its Reference Document

The Montreux Document is an international non-legally binding instrument that reaffirms the existing obligations of States under international law relating to the activities of PMSCs—particularly those under IHL and IHRL. It is the result of a joint initiative launched by Switzerland and the ICRC and the first document of international significance that reaffirms existing international obligations relating to the activities of PMSCs during armed conflict and that assembles a set of good practices relating to these activities.

At the time of its adoption, in 2008, the use of PMSCs in maritime contexts was still marginal. However, in the following years, the protection of merchant ships from security threats like piracy and armed robbery at sea became one of the top business sectors of the PMSC industry.⁶³ The preamble of the Montreux Document states that it can be useful in situations other than armed conflict. Certain participants who were active in discussions at the Montreux Document Forum realized that maritime security operations of PMSCs could be considered a setting in which the Montreux Document could offer valuable guidance.

This prompted the Maritime Working Group of the Montreux Document Forum to develop an interpretative guide that would make the Montreux Document more comprehensible from a maritime security perspective—the Reference Document — Elements for a maritime interpretation of the Montreux Document.

⁵⁹ For example, the ICS, the BIMCO, the INTERCARGO and INTERTANKO.

⁶⁰ For example, the ISWAN.

⁶¹ For example, INTERPOL.

⁶² For example, the Contact Group on Piracy Off the Coast of Somalia and the EU NAVFOR Somalia.

⁶³ See, Section A above.

In line with the Montreux Document, the Reference Document compiles and reaffirms the existing obligations of States under international law, including under IHL, IHRL, and the law of the sea, and addresses legal and practical challenges related to the growing participation of PMSCs in maritime security. It also bears in mind cases where PMSCs may take part in naval warfare. It seeks to contribute to the resolution of challenges such as the multiple and dispersed sources of law and applicable jurisdictions, the proliferation of weapons at sea, the impact on the security of coastal States, and the consequent impact on the human rights of all persons involved.

The Reference Document is the result of an ample cross-sector consultation process promoted by Portugal as one of the chairs of the Maritime Working Group. This process, which began in mid-2018 and lasted until late 2020, gathered contributions from the ICRC, international organizations, such as the IMO, experts on international law, and experts on PMSCs, including the ICoCA, members of the shipping industry, and the private security industry and NGOs dedicated to promoting maritime security and human rights in that context.

In its Introduction, the Reference Document states that it should be read together with the Montreux Document. In addition, it mimics the original division of the Montreux Document into two parts to adequately serve its purpose as an interpretative tool.⁶⁴ The first chapter of the Reference Document—*Maritime Interpretative Guidance for Part One: Pertinent International Legal Obligations Relating to Private Military and Security Companies*—clarifies how the general obligations identified in Part One of the Montreux Document can apply to PMSCs operating in a maritime context. The second chapter—*Maritime Interpretative Guidance for Part Two: Good Practices relating to Maritime Private Military and Security Companies*—offers guidance on how to better understand and put into practice, in the maritime context, the good practices relating to the obligations reaffirmed in Part One of the Montreux Document.

The Montreux Document highlights the obligations of three categories of States: (i) Contracting States (those that hire PMSCs); (ii) Territorial States (those on whose territory PMSCs operate); and (iii) Home States (those where PMSCs are based/registered). The most relevant State actors for the

⁶⁴ Chair of the Maritime Working Group of the Montreux Document Forum (Portugal), “Reference Document: Elements for a Maritime Interpretation of the Montreux Document,” 7.

Montreux Document in the maritime context are those that can be equated with the Territorial States. Most often, these will coincide with flag States—acknowledged as generally having the prerogative to decide on the use of PMSCs in maritime security, dependent on applicable national laws and consistent with international law.

The second chapter of the Reference Document—which is based on Part II of the Montreux Document—proposes seven thematic pillars of good practices: (i) determination of services; (ii) authorization to provide military and security services; (iii) procedures regarding authorizations; (iv) criteria for granting an authorization; (v) terms of an authorization; (vi) rules on the provision of services by PMSCs and their personnel; (vii) the monitorization of compliance; and (viii) ensuring accountability. This guidance can be especially useful for States drafting national laws and regulations applicable to PMSCs operating in maritime security.

In reaffirming and clarifying existing applicable international law, coupled with concrete guidance on good practices, the Reference Document is expected to have a positive impact for many maritime security actors.⁶⁵

3. UNODC's *Manual on Maritime Crime*

Under its Global Maritime Crime Programme, the UNODC published the *Maritime Crime: A Manual for Criminal Justice for Practitioners*⁶⁶ with the view of providing further technical support to United Nations Member States in addressing the many challenges arising from maritime crime. The manual was created both as a training tool for the capacity-building work carried out by the Global Maritime Crime Programme and as a guide for criminal justice practitioners dealing with maritime cases. It has two annexes: *Annex A: Summary of Laws Regulating Floating Armouries and Their Operations*⁶⁷ and *Annex B: Handbook on the Use of Force by Private Security Companies*.⁶⁸

⁶⁵ Chair of the Maritime Working Group of the Montreux Document Forum (Portugal), 7.

⁶⁶ UNODC, *Maritime Crime: A Manual for Criminal Justice for Practitioners*, 2nd Edition, Global Maritime Crime Programme (Vienna: United Nations Office at Vienna, 2019).

⁶⁷ UNODC, "Summary of Laws Regulating Floating Armouries and Their Operations. Annex A to Maritime Crime: A Manual for Criminal Justice Practitioners," in *Maritime Crime: A Manual for Criminal Justice for Practitioners*, Global Maritime Crime Programme (Vienna: United Nations Office at Vienna, 2020), https://www.unodc.org/documents/Maritime_crime/19-02073_Floating_Armouries.pdf.

⁶⁸ UNODC, "Handbook on the Use of Force by Private Security Companies, Annex B to "Maritime Crime: A Manual for Criminal Justice Practitioners," in *Maritime Crime: A Manual for Criminal Justice for*

One paramount recommendation included in the latter is that of involving legal advisers when designing a use-of-force policy, as those seeking to identify the circumstances and limitations governing the use of force by PMSCs in maritime operations and that are acceptable for States, clients, and the PMSCs themselves. The guidance is presented in the handbook under the assumption that the use of force by PMSCs in that context is in self-defense, the defense of others, or the protection of property.

D. An Example of Domestic Regulation: the Legal Framework Applicable to the Use of PMSCs Aboard Portuguese Ships

As seen in previous sections, the use of PMSCs in maritime security contexts represents a method that is viewed by the shipping industry as an effective deterrent of piracy while upholding existing obligations under domestic and international law, including those derived from IHRL and the law of the sea. As mentioned above, it is the prerogative of States to choose whether and how to regulate the use of PMSCs on board of ships flying their flag.

In 2019, Portugal adopted Decree-Law No. 159/2019, which establishes the legal framework for the exercise of armed private security activities aboard ships flying the Portuguese flag and crossing areas at high risk of piracy. With a constant increase in registrations since 2013, the International Shipping Register of Madeira is within the top three shipping registers in Europe, both in the number of vessels and in registered tonnage. In addition to fighting a negative impact on the competitiveness of the national maritime sector created by the significant costs to the Portuguese economy, the Decree-Law No. 159/2019 aimed to answer the calls of shipowners for Portugal—as a flag State—to adopt legislation on this issue, since piracy was having an increasing impact on the safety of people and goods on board.

This legal framework strikes an important balance between upholding an effective protection capacity of ships while ensuring respect for internal and international law, particularly concerning the use of force. And bearing in mind

Practitioners, Global Maritime Crime Programme (Vienna: United Nations Office at Vienna, 2020), 78, https://www.unodc.org/documents/Maritime_crime/19-02086_Private_Security_Company_Handbook_Maritime_Crime_ebook.pdf.

that these security activities—subsidiary and exceptional—may call for the use of arms and ammunition, which are usually off limits to private security personnel under Portuguese law.

Using private armed security on board ships flying the Portuguese flag is subject to strict requirements and control mechanisms. *First*, the material and geographical scope of such activities are limited, as they are reserved for protecting ships from acts of piracy as defined under UNCLOS and only where the route of the ship crosses areas of high piracy risk. Those areas are to be determined by an ordinance; however, pending its approval, the activity may be exercised in certain areas in international waters located in the Indian Ocean or in international waters located in the Atlantic Ocean, as established in Circular No. 64 (Rev. 2) of the Portuguese Maritime Administration.⁶⁹ *Second*, the security companies and their personnel looking to provide these armed private security services must be duly qualified to carry out their activities in certain States, either a Member State of the European Union, a State party to the Agreement on the EEA, or a State for that purpose recognized by the PSP National Directorate.⁷⁰ *Third*, private armed security teams, weapons, and ammunition must embark and disembark outside Portuguese territory.⁷¹

To implement the legal framework, several competent authorities from governmental areas such as maritime resources, national defense, and internal administration come together. For example, a travel plan and a counterpiracy plan, which must be submitted to the DGRM, must contain, among other aspects, (i) the travel route, (ii) ship protection measures to be adopted; and (iii) detailed description of arms onboard—trademark, model, number, and caliber.⁷² Once the counterpiracy plan is approved, it is communicated to other law enforcement authorities, such as the PSP and the NMA. The National Directorate of the PSP, as a law enforcement force, is the public entity in charge of assessing requests for professional licenses and cards for the exercise of security activities on board as well as issuing such licenses and cards.⁷³ Providing security services

⁶⁹ See, Articles 2 and 42 of Decree-Law No. 159/2019.

⁷⁰ See, Articles 5, 6 and 42 of Decree-Law No. 159/2019.

⁷¹ See, Article 42 of Decree-Law No. 159/2019.

⁷² See, Articles 26 and 29 of Decree-Law No. 159/2019.

⁷³ See, Article 14 of Decree-Law No. 159/2019.

on board without a proper professional license is punishable by up to five years' imprisonment.

Overall, Decree-Law No. 159/2019 poses strict conditions for the contracting and use of on-board security services, incorporating good practices and guidance from relevant entities and initiatives, including the IMO and the Montreux Document Forum. In fact, and although Decree-Law No. 159/2019 predates the Reference Document, Portuguese lawmakers considered the ongoing discussions that were taking place in the Maritime Working Group. This is especially evident in the provisions relating to (i) requirements and incompatibilities for the exercise of security activity on board;⁷⁴ (ii) the embarkment, use, and storage of arms and ammunition;⁷⁵ and to the shipmaster's ultimate authority on board.⁷⁶

E. Conclusion

The outsourcing of maritime military and security operations that characterized Western history until the nineteenth century made a significant comeback in the late 2000s, as shipping companies responded to a surge of piracy and armed robbery off the coast of Somalia. The practice extended in this and other hotspots, which led to the protection of merchant ships becoming one of the top business sectors of the PMSC industry.

Yet, the use of PMSCs in maritime security has legal and practical specificities, such as the various applicable international legal sources and jurisdictions, from which several concerns emerge. The combination of legal uncertainty, unregulated armed maritime security teams, and a lack of awareness of existing regulations risks an increase in violence at sea and negative impacts on human rights.

Some authors claim international law, including UNCLOS, has failed to adapt to and address the many challenges resulting from modern-day piracy and the use of PMSCs in maritime security. Faced with unregulated and violent interactions between pirates and PMSCs and the lack of State interference, States—chiefly flag States and States in regions especially affected by piracy—and international organizations as well as PMSCs themselves have turned to non-legally binding

⁷⁴ See, Article 10 of Decree-Law No. 159/2019.

⁷⁵ See, Articles 30 to 35 of Decree-Law No. 159/2019.

⁷⁶ See, Article 8 of Decree-Law No. 159/2019.

international standards and acknowledged good practices to tackle those challenges.

Among the most successful and comprehensive examples of guidance and recommendations are the IMO's Interim Guidance and the Best Management Practices thereon, the Montreux Document and its Reference Document, and the UNODC's Manual on Maritime Crime.

Additional important contributions to upholding respect for international law, including provisions of UNCLOS, are the domestic laws and regulations that flag States adopt on the use of PMCs onboard their ships.

Piracy and armed robbery are maritime crimes of opportunity, resurfacing and expanding according to political, socioeconomical, and even seasonal and climate factors. In most hotspots, the root causes of these maritime crimes remain without effective and sustainable solutions, so PMCs are expected to remain a fundamental actor in maritime security for as long as the perception of risk—mainly that of shipowners and insurance companies—remains high.

CHAPTER 17 |

PORTUGAL AS FLAG STATE: FLAG OF CONVENIENCE OR CONVENIENT FLAG?

A REFLECTION ON FLAG STATE DUTIES UNDER UNCLOS AND THEIR IMPLEMENTATION BY PORTUGAL

Rúben Guedes Dias

A. Introduction

According to data collected by UNCTAD, the Portuguese fleet recorded the largest year-on-year growth in 2021 and is now the fourteenth largest in the world by dead-weight tonnage—a position it maintained in 2022.¹ This is largely due to MAR, which concentrates most vessels sailing under the Portuguese flag—six-hundred eighty-three out of six-hundred eighty-six.² Despite MAR's existence since 1989, this second registry has only recently started to take off, largely due to legal changes elsewhere and the efforts of private promoters.³ As we shall see below, this can bring plenty of advantages for Portugal, both on a political and economic level. However, it also poses risks, including to the ability of the Portuguese maritime administration to cope with this increase in its national fleet. In such a competitive industry, where States often compete with each other for the revenue raised by registries, the reputational damage caused by the inability to adequately perform flag State's duties would be substantial. There are signs that we should heed, such as the classification of MAR as a *flag of convenience* by the

¹ United Nations, "Review of Maritime Transport 2022. Navigating Stormy Waters." (New York: United Nations Conference on Trade and Development, 2022), 42, https://unctad.org/system/files/official-document/rmt2022_en.pdf.

² Instituto da Mobilidade e dos Transportes, IP, "Frota Operacional de Bandeira Portuguesa 2021," <https://app.powerbi.com/view?r=eyJrIjoiN2YwZDAzMtctNDZhOS00ODUyLWFlbnZQtYjlkMmVhY2ViY2Nhliwid-Ci6ljAzMDljNzFiLWFlkMjUtNDEwMS05OGFmLTQ2NDQ2NjY2MjU3NSIsImMiOiJh9>.

³ See, for example, Madeira Management, "MAR – Madeira International Shipping Register," <https://madeira-management.com/>, accessed January 11, 2023, <https://madeira-management.com/about-madeira/mar-international-shipping-register/>.

ITE. As such, it is important to reflect on what a *flag of convenience* is, what are the duties of flag States and whether Portugal can fulfil them.

B. Flagging as a Tool for International Relations at and about the Sea

1. The concept of Flag State

(i) Nationality

A flag State is the State of the nationality of a ship.⁴ The nationality of a ship is customarily demonstrated by flying the flag of that State—hence the term *flag State*.⁵ The nationality of a ship determines its status by identifying the State under whose protection and jurisdiction it sails.⁶ As such, the ship's nationality largely determines its operational conditions, the rights, working conditions, qualifications of its master and crew, as well as how the ship will relate to other ships.⁷

Despite this, UNCLOS does not provide much guidance on the issue of nationality. It merely states that it is up to the flag State to set the conditions for granting its nationality to a vessel.⁸ This largely corresponded to customary international law at the time UNCLOS was negotiated.

However, in its commentaries to Article 29 of the 1956 Draft Articles concerning the Law of the Sea,⁹ the International Law Commission considered that when establishing those conditions States should not veer too far away from the principles adopted by the majority of States and compared the issue to that of the nationality of persons and corporations. This warning does not seem to have been heeded, although Article 91 of UNCLOS reproduces part of Article 29 of that draft. Furthermore, it is disputed whether the nationality of ships bears any resemblance to the nationality of a person or a corporation.¹⁰ Although major

⁴ Robin R. Churchill and Alan V. Lowe, *The Law of the Sea*, 3. ed., [Nachdr.], Melland Schill Studies in International Law (Yonkers, NY: Juris Publ. [u.a.], 20).

⁵ D.I Caron, "Flags of Vessels," in *Encyclopedia of Public International Law*, VOL. II, vol. II (Amsterdam: North Holland, 1995), 1510.

⁶ Rui Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo* (Lisboa: Petrony, 2022).

⁷ Luís Lima Pinheiro, *Estudos de direito marítimo* (Lisboa: AAFDL Editora, 2021).

⁸ See, Article 91 of UNCLOS.

⁹ United Nations, *Yearbook of the International Law Commission 1956*, vol. II, Documents of the Eighth Session Including the Report of the Commission to the General Assembly, A/CN.4/SER.A/1956/Add.I (New York, 1956), 278–79, https://legal.un.org/ilc/publications/yearbooks/english/ilc_1956_v2.pdf.

¹⁰ Satya N. Nandan and Myron H. Nordquist, *United Nations Convention on the Law of the Sea, 1982: A Commentary*, vol. III (Dordrecht: Nijhoff, 2002), 103–9.

vessels are a hugely complex operation, involving hundreds of people and multiple companies, with different nationalities,¹¹ they do not have legal personality.¹² The nationality of a ship is, thus, merely the designation attributed to the legal link established between the vessel and a State.¹³

Considering the role of nationality in setting the status of the ship, UNCLOS establishes that ships may fly only one flag—under penalty of having both flags disregarded and being deemed stateless—and that they cannot change flags during a voyage or at a port of call unless it is a case of change of property or registry.¹⁴

Although the first two sentences of Article 91 of UNCLOS have remained unchanged since the first codification proposed by the International Law Commission—and the customary nature of most of these provisions—the 1958 Geneva Convention on the High Seas introduced a major innovation—the requirement for a genuine link.¹⁵ The attempts to define this term and the controversies that accompany these attempts are the subject of the following subsection.

(ii) The genuine link

Under UNCLOS, “[t]here must exist a genuine link between the State and the ship.”¹⁶ Although based on a similar provision of the 1958 Geneva Convention on the High Seas, there are significant points of departure between the two instruments. Article 5 of the 1958 Geneva Convention on the High Seas established that

[t]here must exist a genuine link between the State and the ship; in particular, the State must effectively exercise its jurisdiction and control in administrative, technical, and social matters over ships flying its flag.¹⁷

¹¹ Joe Borg, “Los 25 Años de la Convención de las Naciones Unidas sobre el Derecho del Mar: El Futuro de la Gobernanza Marítima Internacional desde una Perspectiva Europea,” *Diplomacia*, No. 114 (March 2008): 7–24.

¹² Pinheiro, *Estudos de direito marítimo*.

¹³ Pinheiro; Nandan and Nordquist, *United Nations Convention on the Law of the Sea*, 1982, III:103–9.

¹⁴ See, Article 92 of UNCLOS.

¹⁵ Robin R. Churchill and Alan V. Lowe, *The Law of the Sea*, 3. ed., [Nachdr.], Melland Schill Studies in International Law (Yonkers, NY: Juris Publ. [u.a.], 1999).

¹⁶ See, Article 91 of UNCLOS.

¹⁷ See, Article 5 of the 1958 Geneva Convention on the High Seas.

This led some authors to consider that the effective exercise of jurisdiction and control was the definition of *genuine link*. In support of this interpretation, they refer to the French text of this article, where in lieu of *in particular* it reads *notamment*, thus supposedly detailing the concept of *genuine link* by referring to the effective exercise of jurisdiction and control.¹⁸

Under UNCLOS, the concepts of *genuine link* and *effective exercise of jurisdiction and control* have been separated, the latter being included in Article 94 of UNCLOS, which deals with the duties of the flag State. The genuine link is thus seemingly left without definition in the Convention. The fact that it does not seem to correspond to customary international law, but rather to an adaptation of the judgment in *Nottebohm (Liechtenstein v. Guatemala)*,¹⁹ which focused on individuals' nationality, does not contribute to making the situation any clearer. In addressing this issue, the International Law Commission recognized that State practice was too diverse to find a uniform set of criteria constituting a genuine link.

Considering the lack of clarity on this issue under UNCLOS, as well as the shaky implementation of the concept by States,²⁰ there have been some attempts to clarify the link under the auspices of UNCTAD, FAO, and the IMO. UNCTAD's efforts, which began under the 1958 Geneva Convention on the High Seas, consisted of promoting the negotiation of the UNCCORS, under which a ship can be registered in the State of which its owner (or part-owner) or a *satisfactory* part of its officers and crew are nationals. However, UNCCORS has failed to garner enough ratifications to enter into force.

Both FAO and the IMO have made more successful efforts. FAO has focused primarily on fishing vessels. Despite its best attempts, it has failed to include criteria to verify the existence of a *genuine link* in the major international instruments negotiated under its auspices. Instead, it has focused on enhancing compliance and the effective exercise of jurisdiction and control by flag States. A similar approach has been taken by the IMO, which has focused primarily on (i) further clarifying flag States' duties regarding the safety of navigation and the seaworthiness of

¹⁸ Tamo Zwinge, "Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So" 10, No. 2 (2011): 29.

¹⁹ *Nottebohm Case (second phase)*, *Judgement of April 6, 1955: I.C.J. Reports 1955*. See also, Churchill and Lowe, *The Law of the Sea*, 1999.

²⁰ Churchill and Lowe.

ships;²¹ and (ii) providing them with technical support,²² including crucially a mandatory audit scheme. This more pragmatic approach was espoused by multiple international organizations in a 2006 report to the Secretary-General of the United Nations²³ and is in tune with some scholarly opinion that considers this discussion largely fruitless, as the shipping sector has become increasingly global.²⁴ As a result, the focus has shifted to whether a flag State is fulfilling its duties.

A similar focus can be observed in ITLOS jurisprudence, while the ICJ has refrained from addressing the issue except in the context of the advisory opinion in *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*,²⁵ to which we refer below. ITLOS has largely adopted a functional approach aimed at preserving the flag State jurisdiction against attempts by coastal States to disregard the nationality of the ship due to a lack of a genuine link, holding that all such efforts would be unlawful.²⁶

However, it has also provided guidance on what it deems to be a *genuine link*. ITLOS has regarded the *genuine link* not as a restriction to States in granting nationality to a ship but rather as a functional requirement, allowing for the more efficient discharge of the flag State's duties. In *M/V "Virginia G" (Panama/Guinea-Bissau)*, ITLOS considered that

[...] once a ship is registered, the flag State is required, under Article 94 of the Convention, to exercise effective jurisdiction and control over that ship in order to ensure that it operates in accordance with generally accepted international regulations, procedures and practices. This is the meaning of *genuine link*.²⁷

Although ITLOS seemingly provided a definition for *genuine link*, which it maintained in subsequent decisions,²⁸ this did not satisfy some authors nor

²¹ Zwinge, "Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So."

²² Efthimios E. Mitropoulos, "La OMI y la Adopcion de Normas Internacionales para el Transporte Maritimo," *Diplomacia*, No. 114 (March 2008): 25–32.

²³ General Assembly 61/160, *Note by the Secretary-General concerning the Report of the Ad Hoc Consultative Meeting of senior representatives of international organizations on the genuine link*, A/61/160 (July 17, 2006), available at undocs.org/en/A/61/160, Annex.

²⁴ M. McConnell, "ITLOS and the Tale of the Tenacious 'Genuine Link,'" in *The Development of the Law of the Sea Convention* (Edward Elgar Publishing Limited, n.d.), 296.

²⁵ *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization, Advisory Opinion of June 8, 1960*, I.C.J. Reports 1960.

²⁶ McConnell, "ITLOS and the Tale of the Tenacious 'Genuine Link,'" 296.

²⁷ *M/V "Virginia G" (Panama/Guinea-Bissau), Judgment*, ITLOS Reports 2014, p. 45.

²⁸ McConnell, "ITLOS and the Tale of the Tenacious 'Genuine Link.'"

did Judge Ndiaye,²⁹ who in his dissenting opinion to the judgment in *M/V “Virginia G” (Panama/Guinea-Bissau)* still stated that ITLOS should have gone further in defining this concept.³⁰

In view of the above, the concept of *genuine link*—or absence thereof—remains controversial, especially with regard to the issue of flags of convenience. The particular challenges the latter issue poses are addressed in the following subsection.

(iii) Flag of Convenience

A *flag of convenience* is defined by some authors as a flag State that requires for registration either a minor link or no link at all between the vessel and the State.³¹ They are also called *open registries*.³² After the 1958 Geneva Convention on the High Seas introduced the requirement of *genuine link*, this practice was expected to decline. However, increasing competition in the shipping sector and the requirement by traditional maritime powers that all or part of the crew be nationals of the flag State led operators to use reflagging as a cost-cutting mechanism.³³

Flags of convenience have frequently been associated with lax requirements regarding the seaworthiness of vessels, safety, and crew qualifications.³⁴ Some of this criticism must be read in context. Flags of convenience first appeared in the Global South, posing a risk to incumbents in the primarily industrialized States in the Global North. Furthermore, considering that international and open registries account for most of the world’s merchant shipping tonnage,³⁵ incidents involving ships flying a flag of convenience will necessarily be in higher number. However, there still seems to be a higher rate of marine casualties involving ships

²⁹ McConnell.

³⁰ *M/V “Virginia G” (Panama/Guinea-Bissau)*, *Dissenting Opinion of Judge Ndiaye*, ITLOS Reports 2014.

³¹ Churchill and Lowe, *The Law of the Sea*, 1999; J. Ignarski, “Flags of Convenience,” in *Encyclopedia of Public International Law*, vol. II (Amsterdam: North Holland, 1995), 1510.

³² Ignarski, “Flags of Convenience.”

³³ Ignarski.

³⁴ Churchill and Lowe, *The Law of the Sea*, 1999; A. Chircop, “Obligations of Flag States in the Exclusive Economic Zone,” in *The Development of the Law of the Sea Convention*. (Edward Elgar Publishing Limited, 2020), 295.

³⁵ Zwinge, “Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So”; Churchill and Lowe, *The Law of the Sea*, 1999.

registered in open registries.³⁶ Some authors point to sub-standard ships and an alleged lack of control by the flag State as reasons for the higher casualty rate.³⁷ Yet, in the cases submitted to ITLOS, there were no cases where flag States refused to exercise jurisdiction and control by the flag State.³⁸ Furthermore, it is widely recognized that there are sub-standard ships in all registries.³⁹

This debate is also less relevant since the proliferation of international registries—and other so-called *semi-open registries*. These are usually maintained alongside traditional registries, with some having been established in overseas dependencies. They have been created by traditional maritime powers, with Norway pioneering this trend and the United States of America (Marshall Islands), the United Kingdom (Channel Islands) and the Netherlands (Curacao) as the best-known examples. Portugal has joined this trend with the creation of MAR, albeit comparatively late.

The clarity of the debate surrounding flags of convenience is not helped by the conceptual disagreement of what constitutes a flag of convenience, amongst stakeholders and authors alike. The ITF avoided the issue of what constitutes a flag of convenience by instead defining *ship flying a flag of convenience* as a ship whose State of registration is different from the State of ownership.⁴⁰ Despite also focusing on the ships in their concept, the ITF then generalizes the issue in its long-running campaign against flags of convenience, in which it publishes a list of flags of convenience that includes forty-two jurisdictions. In compiling this list, the ITF also considers the flag State's ability and willingness to enforce international minimum social standards, its record of ratification and enforcement of ILO conventions and recommendations and the State's safety and environmental records.⁴¹ Thus, the ITF ultimately focuses on a more programmatic approach, albeit one that emphasizes social aspects and goes further than the UNCCORS ever intended.

³⁶ Zwinge, "Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So."

³⁷ See, for example, Zwinge.

³⁸ McConnell, "ITLOS and the Tale of the Tenacious 'Genuine Link.'"

³⁹ Churchill and Lowe, *The Law of the Sea*, 1999.

⁴⁰ ITF, "Flags of Convenience," <https://www.itfglobal.org/en/sector/seafarers/flags-of-convenience>, accessed September 21, 2022, <https://www.itfglobal.org/en/sector/seafarers/flags-of-convenience>.

⁴¹ Zwinge, "Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So."

Some civil society organizations and scholarly opinion add to the definition of *flag of convenience* the provision of financial benefits, such as tax benefits, low registration fees and low tax regimes.⁴² However, it is still not easily discernible how this would negatively impact the exercise of jurisdiction and control by the flag State.

The lack of clarity and differing views on what is a flag of convenience points to the term *flag of convenience* having become shorthand for most of what ails the shipping industry. Thus, the debate could benefit from a more focused approach, considering ITLOS jurisprudence. Accordingly, in line with Zwinge, we propose to consider as a flag of convenience a flag whose State consistently fails to exercise effective control or jurisdiction over vessels sailing under its flag.⁴³

2. The weight of the flag in ocean governance

The debate over flags of convenience has also regularly overlooked another element to States opposition to open registries. It has been a common practice in the law of the sea conventions that they enter into force only upon the ratification of a certain number of the largest ship-owning nations, by tonnage.⁴⁴ This gives the States with the biggest world fleets more influence over what becomes part of the international law of the sea.

A greater say in determining what becomes law translates into political power, which is reinforced by how the IMO is organized. As per the Convention on the IMO,⁴⁵ the IMO Council is chosen based on the States with the largest interest in providing international shipping services and the States with the largest interest in international seaborne trade.

Upon the establishment of the IMCO, which later became the IMO, the MSC was comprised of, among others, the *largest ship-owning nations*. This gave rise to a difference of interpretation, which the ICJ was called upon to settle in its advisory opinion in *Constitution of the Maritime Safety Committee of the*

⁴² NGO Shipbreaking Platform, “Flags of Convenience – NGO Shipbreaking Platform,” *NGO Shipbreaking Platform* (blog), 2022, <https://shipbreakingplatform.org/issues-of-interest/focs/>; Duarte Lynce de Faria, *O (novo) direito da segurança marítima: o navio, os Estados, as convenções e a sua autonomia* (Coimbra: Almedina, 2022).

⁴³ “Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So.”

⁴⁴ H. Hill, “IMCO Maritime Safety Committee,” in *Encyclopedia of Public International Law*, vol. II (Amsterdam: North Holland, 1995).

⁴⁵ See, Article 17 of the Convention on the IMO.

Inter-Governmental Maritime Consultative Organization.⁴⁶ The ICJ held that the IMCO Assembly could not have discretion in defining the term *largest ship-owning nations*, as this would conflict with the mandatory nature of the provision being interpreted. Moreover, the ICJ observed that there could be only three meanings to that expression—ships owned by the States themselves, tonnage beneficially owned by nationals of a State, or the registered tonnage of a State. The ICJ concluded that the criterion of *the registered tonnage of a State* would be more practical, certain, and applicable, finding it unnecessary to dwell on the issue of the definition of *genuine link*, raised at the time under Article 5 of the 1958 Geneva Convention on the High Seas.⁴⁷

Under the advisory opinion in *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*, the interpretation has thus remained that it is the size of the fleet that matters—as recognized by some civil society organizations.⁴⁸ Furthermore, the ocean is also a space of competition,⁴⁹ in which the flag of a vessel is also a factor, considering it provides resources to States—through registration fees and taxes—and allows them to exert influence on companies often based elsewhere. However, it is less clear whether the size of the merchant fleet could be a military asset, as there are known instances of agreements that allow military use of vessels registered in one State by the State of ownership or control.⁵⁰

C. Flag State Duties under UNCLOS

1. The exclusive jurisdiction of the Flag State

As detailed above, much depends on the effective exercise of jurisdiction and control by the flag State. Alongside the protection of the ship, this has customarily been the primary duty of the flag State, and it has been included in the framework established by UNCLOS. Under UNCLOS, ships on the high seas are subject to the exclusive jurisdiction of the flag State, unless otherwise provided in

⁴⁶ *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization, Advisory Opinion of June 8, 1960, I.C.J. Reports 1960.*

⁴⁷ Hill, “IMCO Maritime Safety Committee”; Churchill and Lowe, *The Law of the Sea*, 1999.

⁴⁸ NGO Shipbreaking Platform, “Flags of Convenience – NGO Shipbreaking Platform.”

⁴⁹ António Silva Ribeiro, “Uma Visão Estratégica do Mar – Perspectivas de Análise,” *Revista Negócios Estrangeiros* 12 (January 2008): 65–75.

⁵⁰ Churchill and Lowe, *The Law of the Sea*, 1999.

international law—either UNCLOS or another multilateral or bilateral treaty.⁵¹ This exclusivity of the flag State jurisdiction also manifests in the form of a right to claim non-interference with a ship by non-flag States.⁵² As the International Law Commission recognized in its commentary to the 1956 Draft Articles concerning the Law of the Sea,⁵³ the exclusive jurisdiction of the flag State is the corollary of the freedom of the high seas, without which there would be chaos. This jurisdiction is exercised at the legislative, executive, and judicial levels by enacting laws that bind ships with the State's nationality,⁵⁴ enforcing them, and prosecuting their violation.

However, UNCLOS provides for exceptions to the exclusive jurisdiction of the flag State, most notably in the form of a right of visit in cases of piracy, unauthorized broadcasting, slave trade, and in cases where the ship is sailing under no nationality or under a pretence nationality.⁵⁵ Seizure and arrest are also provided for in certain situations, such as piracy and illegal broadcasting, but UNCLOS does not go into great detail about their use.

While the jurisdiction of flag States competes with that of the coastal and port States, as we will see, the vastness of the areas over which the flag State exercises jurisdiction is already apparent. This jurisdiction is exercised mainly on the basis of the domestic law of the flag State.⁵⁶ If there were no specific international law provisions, international shipping would be rendered chaotic by the sheer diversity of applicable legal regimes. To prevent such result, UNCLOS establishes a set of duties that flag States must comply with in order to ensure compatibility amongst flag States' practices,⁵⁷ including by establishing a non-exhaustive list detailing such duties.⁵⁸

⁵¹ See, Articles 92 and 94 of UNCLOS. See also, Nandan and Nordquist, *United Nations Convention on the Law of the Sea*, 1982, III:122–27 and 135–52.

⁵² T. Treves, "High Seas," in *Encyclopedia of Public International Law*, vol. II (Amsterdam: North Holland, 1995); F. Briosa e Gala, "Alto Mar," in *Enciclopédia de Direito Internacional* (Almedina, 2011), 512.

⁵³ United Nations, *Yearbook of the International Law Commission* 1956, II:274 and 278 onwards.

⁵⁴ Zwinge, "Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So"; Pinheiro, *Estudos de direito marítimo*.

⁵⁵ In this case, only where the ship shares the nationality of the State under whose flag the visiting ship is sailing.

⁵⁶ Pinheiro, *Estudos de direito marítimo*; Faria, *O (novo) direito da segurança marítima*.

⁵⁷ Pinheiro, *Estudos de direito marítimo*.

⁵⁸ See, Article 94 of UNCLOS. However, there are other provisions that specify or detail the duties of a flag State. See also, Nandan and Nordquist, *United Nations Convention on the Law of the Sea*, 1982, III:135–52.

The primordial duty of a flag State is to exercise effective jurisdiction and control in administrative, technical, and social matters.⁵⁹ The ability of a flag State to do so constitutes a genuine link between itself and the ship flying its flag.⁶⁰

UNCLOS clarified the scope of this jurisdiction by pointing out the matters over which the flag State will exert it.⁶¹ This jurisdiction should be exerted over the ship, master, and crew as a unit in administrative, technical, and social matters concerning the ship. This is not so much about the ship as it is about the activities of the ship and the persons aboard—crew and master.⁶² Some have argued that this provision applies only to merchant ships as the article mentions the *master of the ship*, which exists only in merchant ships.⁶³ It is true that fishing vessels are largely exempt or excluded from a significant number of international law of the sea instruments due to their nature, size or activity. It is also true that the commanding officer of a merchant ship and the commanding officer of a fishing ship are usually referred to by different terms—the former is the master of the ship, the latter the skipper of the ship. This different terminology is also reflected in relevant international instruments, including the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers and the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel. However, the inapplicability of this provision to fishing vessels is not entirely uncontroversial, with some authors arguing the opposite.⁶⁴ Furthermore, a simple search on the FAOLEX database reveals countless instances where maritime and legislative authorities use these terms interchangeably.

The Convention further establishes that a flag State must maintain a registry of ships containing the names and particulars of ships flying its flag, except those

⁵⁹ See, Article 94(1) of UNCLOS.

⁶⁰ Nandan and Nordquist, *United Nations Convention on the Law of the Sea*, 1982, III:135–52.

⁶¹ See, Article 94(1) of UNCLOS.

⁶² See, Article 94(2)(b) of UNCLOS. See also, Mitropoulos, “La OMI y la Adopcion de Normas Internacionales para el Transporte Maritimo,” 135–52. See, similarly, *M/V “SAIGA” (Saint Vincent and the Grenadines v. Guinea)*, *Prompt release, Judgment, ITLOS Reports 1997*.

⁶³ Nandan and Nordquist, *United Nations Convention on the Law of the Sea*, 1982, III:135–52.

⁶⁴ Zwinge, “Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So”; Chircop, “Obligations of Flag States in the Exclusive Economic Zone.”

which are excluded from generally accepted international regulations on account of their small size.⁶⁵

UNCLOS also clarifies what flag States must do regarding safety at sea,⁶⁶ which can be summarized as a (i) duty to legislate; (ii) duty to enforce; and (iii) duty to sanction. The IMO Instruments Implementation Code provides further guidance on each of these duties.⁶⁷

Pursuant to its duty to legislate, the flag State must transpose and densify generally accepted international regulations, procedures, and practices in the areas of (i) safety at sea; (ii) security; and (iii) prevention, reduction, and control of pollution of the marine environment. This duty aims to ensure that these regulations, procedures, and practices are fully applicable in the domestic jurisdiction of the flag State, so that the master and crew are required to comply with them.⁶⁸ The expression *generally accepted international regulations, procedures and practices*—contained in Article 94 of UNCLOS—is not immediately clear, although it does seem to clarify that instruments which are not accepted by most States are not included.⁶⁹ The same expression appears elsewhere,⁷⁰ albeit with a slight variation that seems to have no impact on its meaning.

In fulfilling its duty to enforce international regulations, procedures, and standards, the flag State must, among others, establish a functioning maritime administration with an adequate board of inspectors to control and certify ships flying its flag with respect to (i) their seaworthiness; (ii) their ability to navigate safely; and (iii) their compliance with safety requirements; (iv) the adequate staffing and qualification of the master and crew; and (v) their compliance with international rules and standards on prevention, reduction, and control of pollution of marine environment.⁷¹ Flag States may enter into contractual arrangements for inspection and certification with Classification Societies—private entities that also act in a commercial capacity surveying ships to ensure

⁶⁵ See, Article 94(2)(a) of UNCLOS.

⁶⁶ See, Article 94(3) of UNCLOS, which includes a non-exhaustive list of such legal duties.

⁶⁷ IMO Assembly resolution A.1070(28), *IMO Instruments Implementation Code (III Code)*, A.1070(28), December 4, 2013, available at [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1070\(28\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.1070(28).pdf) (also known as the *Triple I Code*). See also, Faria, *O (novo) direito da segurança marítima*.

⁶⁸ Faria.

⁶⁹ Nandan and Nordquist, *United Nations Convention on the Law of the Sea, 1982*, III:135–52.

⁷⁰ See, Articles 207 and 211 of UNCLOS.

⁷¹ See, Articles 94 and 217 of UNCLOS.

they remain in-class. Classification societies have frequently been singled out as one of the elements that exacerbate the issue of lack of compliance by flag States with their duties.⁷² To stave off criticism regarding the impartiality and rigor of classification societies, the IMO Assembly approved in 1993 the guidelines on what should be considered when a flag State entrusts a classification society with the performance of its duties under international law.⁷³ In the European Union, there is an additional level of control through, *inter alia*, a framework for the control of the activities of classification societies by Member States and specific sanctions for non-compliance.⁷⁴ Under this framework, Member States will only be allowed to enter into contractual arrangements with classification societies recognized by the European Commission.⁷⁵

Moreover, and still pursuant to their duty to enforce international regulations, procedures, and standards, flag States must investigate

[...] every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious injury to nationals of another State or serious damage to ships or installations of another State or to marine environment.⁷⁶

Finally, flag States have a duty to sanction violations of international regulations, procedures, and standards, in particular those relating to seaworthiness, safety, and security, as well as the prevention, reduction, and control of pollution of the marine environment. Sanctions should be adequate to deter potential violators.⁷⁷ This duty is particularly important when one considers that UNCLOS confers quasi-exclusive criminal jurisdiction on the flag State in the event of a collision or other incident of navigation involving a ship on the high seas that results in

⁷² Zwinge, “Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So.”

⁷³ IMO Assembly resolution A.739(18), *Guidelines for the Authorization of Organizations Acting on Behalf of the Administration*, November 4, 1993, available at [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.739\(18\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.739(18).pdf).

⁷⁴ Directive 2009/15/EC of the European Parliament and of the Council of April 23, 2009, on common rules and standards for ship inspection and survey organizations and for the relevant activities of maritime administrations (Text with EEA relevance), Official Journal (L 131/47), May 28, 2009, pp. 73–82. In Portugal, Decree-Law No. 13/2012, of January 20, 2012, transposed this directive.

⁷⁵ Faria, *O (novo) direito da segurança marítima*.

⁷⁶ See, Article 94(7) of UNCLOS.

⁷⁷ Faria, *O (novo) direito da segurança marítima*.

the criminal or disciplinary responsibility of the master or other person in the service of that ship.⁷⁸

Notwithstanding the thoroughness of the legal framework applicable to merchant ships, which is not reflected on the legal framework for fishing vessels,⁷⁹ there is still much criticism of the implementation of these duties by flag States.⁸⁰ In response to this criticism, the means of controlling the implementation by flag States have expanded in recent years to include three main monitoring tools—self-evaluation by the flag State, IMO mandatory audits, and port State control.

Self-evaluation by flag States stems not only from IMO instruments, but also from UNCLOS itself. The latter establishes that flag States must investigate any report by a State that has clear grounds for believing that proper jurisdiction and control over a ship have not been exercised. This duty was considered by many to be insufficient, which led to other forms of control, including the IMO mandatory audits scheme,⁸¹ which was established in 2016—the year in which Portugal was first audited under this scheme⁸²—and replaced the voluntary audits scheme first established in 2003.⁸³ However, the main avenue of third-party control remains the port State control.

2. Interaction between the exclusivity of flag State jurisdiction and coastal and port States jurisdictions

Since the debate on freedom of navigation gave birth to the concept and framework of the high seas, an area where national jurisdiction was inapplicable, the number of areas subject to national jurisdiction has gradually grown.⁸⁴ This trend has been justified by the ineffectiveness of flag State jurisdiction in preventing damage to the marine environment and loss of life, which in turn was

⁷⁸ See, Article 97 of UNCLOS.

⁷⁹ Zwinge, “Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So”; Chircop, “Obligations of Flag States in the Exclusive Economic Zone.”

⁸⁰ Zwinge, “Duties of Flag States to Implement and Enforce International Standards and Regulations – And Measures to Counter Their Failure to Do So.”

⁸¹ See, IMO, “Member State Audit Scheme,” <https://www.imo.org/>, accessed January 11, 2023, <https://www.imo.org/en/ourwork/msas/Pages/Default.aspx#:~:text=The%20audit%20scheme%2C%20using%20the,are%20covered%20by%20the%20Scheme>.

⁸² Faria, *O (novo) direito da segurança marítima*.

⁸³ Faria; Mitropoulos, “La OMI y la Adopción de Normas Internacionales para el Transporte Marítimo.”

⁸⁴ Guedes, *Direito Do Mar*.

the reason given for the creation of port State control in the first iteration of the SOLAS Convention.⁸⁵

The main impact of the (comparatively) new legal frameworks regarding the Area, continental shelf, and the EEZ on the high seas has mainly been one of diminishing its size. However, UNCLOS has also extended the right of hot pursuit to situations involving a violation of the domestic law of a coastal State that falls within its jurisdiction over the EEZ or the continental shelf,⁸⁶ thus expanding the scope of a coastal State's jurisdiction to the high seas. This right was previously applied only to violations that occurred in the territorial sea or internal waters of the coastal State.

These developments have had relatively little impact on flag States, as they have primarily created areas of concurrence of jurisdictions between the flag State and other States or international organizations, in the case of the Area.⁸⁷ This concurrence of jurisdiction already existed in the territorial sea and, to a lesser extent, in the internal waters.⁸⁸ In fact, the jurisdiction of the flag State over the ship will always exist no matter where it is located. It simply might not be the only jurisdiction.

The concurrence of jurisdictions manifests itself as a right to interfere in the operation of a ship, through warships or State aircrafts, granted to coastal States.⁸⁹ This is the case of situations of pollution or threat of pollution following a maritime casualty, which may reasonably be expected to result in major harmful consequences.⁹⁰ This right of interference is limited and customarily preceded by contact with the flag State or its local diplomatic or consular representatives.⁹¹

In the case of port States, the port State control allows a higher degree of control over foreign ships. It is intended as a second line of enforcement—the first being the enforcement by the flag State—and now includes almost all *generally accepted*

⁸⁵ Faria, *O (novo) direito da segurança marítima*.

⁸⁶ Churchill and Lowe, *The Law of the Sea*, 1999.

⁸⁷ Pinheiro, *Estudos de direito marítimo*; V. Becker-Weinberg, “Área,” in *Enciclopédia de Direito Internacional* (Coimbra: Almedina, 2011), 512.

⁸⁸ Pinheiro, *Estudos de direito marítimo*.

⁸⁹ Treves, “High Seas.”

⁹⁰ See, Article 221 of UNCLOS.

⁹¹ Chircop, “Obligations of Flag States in the Exclusive Economic Zone”; Pinheiro, *Estudos de direito marítimo*. See also, for instance, Article X of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers.

international regulations, procedures, and standards. Therefore, the ship must comply with them, even if the flag State is not a party to these instruments. Port State control is based on the national sovereignty of States over their own ports, and the rules applied to them mostly stem from their domestic laws.

As such, there is a risk of legal fragmentation that could jeopardize international shipping. For this reason, the IMO has issued guidelines—the IMO Instruments Implementation Code also covers the port State control—and encouraged the creation of regional arrangements to harmonize the port State control in a given region.⁹² There are nine of these regional arrangements, covering most regions. The first of these arrangements—the Paris MoU—now has twenty-seven signatories and has been largely incorporated into European Union Law,⁹³ making it *hard law* and increasing the target of inspections. These inspections and the incidents they detect then result in *white lists* and *black lists* of compliant and non-compliant flag States respectively—with the inclusion in the latter resulting in a higher frequency of inspections for ships flying their flag.

Despite the considerable reduction in the number of marine casualties that has been achieved,⁹⁴ this system is still criticized for depending primarily on the occurrence of incidents rather than their prevention.⁹⁵

D. Portugal as Flag State

1. Acquiring Portuguese nationality

(i) The traditional shipping registry

The first Portuguese shipping registry was established through the French-inspired Commercial Code of 1833.⁹⁶ As in other European countries, one of the purposes of the registry was to establish a set of privileges to which only Portuguese ships were entitled.⁹⁷ Accordingly, national interventions in the great law of the sea debates of the twentieth century were mainly driven by the

⁹² Mitropoulos, “La OMI y la Adopcion de Normas Internacionales para el Transporte Marítimo.”

⁹³ Faria, *O (novo) direito da segurança marítima*.

⁹⁴ Allianz Global and Corporate & Specialty, “Safety and Shipping Review 2022,” 2022, <https://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/reports/AGCS-Safety-Shipping-Review-2022.pdf>.

⁹⁵ Faria, *O (novo) direito da segurança marítima*.

⁹⁶ Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

⁹⁷ Faria, *O (novo) direito da segurança marítima*.

perspective of Portugal as either a coastal State or port State.⁹⁸ In the rare cases in which Portugal focused on its interest as a flag State, these were usually connected with its fishing fleet and its access to the territorial seas of other States.⁹⁹

From the first Commercial Code to nowadays, the Portuguese registry has evolved markedly and it has lost some of the inner coherence that being in a sole legal act gave it.¹⁰⁰ Currently, the legal framework applicable to the registration of a (merchant) ship is spread among different legal acts, including:

- (i) Decree-Law No. 265/72, of July 31, 1972 (in its most recent iteration, resulting from changes introduced by twenty-nine acts);¹⁰¹
- (ii) the Portuguese Civil Code;
- (iii) Decree-Law No. 44/2002, of March 2, 2002;¹⁰²
- (iv) Decree-Law No. 43/2018, of June 18, 2018;¹⁰³
- (v) Decree-Law No. 92/2018; and
- (vi) Decree-Law No. 166/2019.

Despite this legal fragmentation, the issue is not overly complex. Ships acquire Portuguese nationality through the act of registration in one of the Portuguese shipping registries, thus being allowed to sail under Portuguese flag.¹⁰⁴ Registration is mandatory and must be performed either electronically, through (i) the *Balcão Eletrónico do Mar*—a government website; (ii) physically at *Capitania*—a harbormaster's office; or (iii) at a Portuguese consular office.¹⁰⁵

In order for a ship to be registered in the traditional registry, it must comply with all relevant international rules and regulations, for instance the European

⁹⁸ Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

⁹⁹ See the intervention by one of the Portuguese delegates to the First United Nations Convention on the Law of the Sea as reproduced in Januário, 241 onwards. See also, Guedes, *Direito Do Mar*; Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

¹⁰⁰ Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

¹⁰¹ Decree-Law No. 265/72, of July 31, 1972 [Republic Diary No. 265/72, Series 1 of 1972-07-31, pp. 982–(1)–982–(46)], as amended by Decree Law No. 92/2018, of November 13, 2018 [Republic Diary No. 92/2018, Series 1 of 2018-11-13, pp. 5262–5270].

¹⁰² Decree-Law No. 44/2002, of March 2, 2002 [Republic Diary No. 44/2002, Series 1 of 2002-03-02, pp. 1752–1758].

¹⁰³ Decree Law No. 43/2018, of June 18, 2018 [Republic Diary No. 43/2018, Series 1 of 2018-06-18, pp. 2531–2533].

¹⁰⁴ See, Article 6 of Decree-Law No. 92/2018.

¹⁰⁵ Faria, *O (novo) direito da segurança marítima*.

Union Erika Packages¹⁰⁶ and the IMO Instruments Implementation Code.¹⁰⁷ Technical certification is performed by the DGRM or outsourced to a recognized organization, *i.e.*, a classification society. This is done based on a pre-registration survey of the ship.¹⁰⁸ The owner of the ship does not have to be of Portuguese nationality or to have its headquarters in Portugal. However, it must be licensed and be a recognized shipowner.¹⁰⁹ Furthermore, the crew should be composed of (i) Portuguese nationals; (ii) nationals of a Member State of the European Union; (iii) nationals of the EEA; or (iv) nationals of a Portuguese-speaking State.¹¹⁰ Nationals of other States may also be on board, provided they do not exceed 40% of the total crew. The commanding officer cannot be a national of a third State. The crew list is approved by the *Capitania*, which should also define the number of personnel required for the ship according to its class.

All relevant facts about the ship and its crew are then integrated in the SNEM—a database that contains all relevant information about certification, owner identification, property status, and crew.¹¹¹

(ii) The International Shipping Registry of Madeira

MAR was established in 1989 for economic reasons stemming from Madeira's status as an ultra-peripheric region, as well as for strategic reasons related to the phenomenon of flagging out.¹¹² Based on the second registries established by Denmark and Norway,¹¹³ MAR acts as a second registry, granting the right to sail under the Portuguese flag, unlike the ships registered in the Isle of Man.¹¹⁴

¹⁰⁶ European Commission, "Maritime Safety: Erika I," <https://eur-lex.europa.eu/>, March 21, 2000, <https://eur-lex.europa.eu/EN/legal-content/summary/maritime-safety-erika-i-package.html>; European Commission, "Maritime Safety: Erika II," <https://eur-lex.europa.eu/>, December 6, 2000, <https://eur-lex.europa.eu/EN/legal-content/summary/maritime-safety-erika-ii.html>; European Commission, "Third Maritime Safety Package," <https://ec.europa.eu/>, November 23, 2005, https://ec.europa.eu/commission/presscorner/detail/en/MEMO_05_438.

¹⁰⁷ IMO Assembly resolution A.1070(28), *IMO Instruments Implementation Code (III Code)*.

¹⁰⁸ Mateus Andrade Dias, "Poderes Administrativos Sobre Navios," in *Direito Administrativo Do Mar*, 1st Edition (Almedina, n.d.), 526; Faria, *O (novo) direito da segurança marítima*.

¹⁰⁹ See, Article 3 of Decree-Law No. 196/98, of July 10, 1998 [Republic Diary No. 196/98, Series 1 of 1998-07-10, pp. 3203–3205].

¹¹⁰ See, Article 68 of Decree-Law No. 166/2019.

¹¹¹ Faria, *O (novo) direito da segurança marítima*.

¹¹² Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

¹¹³ Faria, *O (novo) direito da segurança marítima*.

¹¹⁴ Caron, "Flags of Vessels."

In contrast to the traditional shipping register, MAR deals with registration, certification, approval of crew lists and levels of personnel, approval of a proposed name, and radio identification, among other things. It is managed by a technical commission composed of officials named by the DGRM, the regional Government of Madeira, and the national Government of Portugal, which chairs it.¹¹⁵

MAR is part of the framework of the International Business Centre of Madeira, and, as such, benefits from (i) special administrative structures, such as a reserved commercial registry; (ii) tax benefits—including an exemption of personal income tax on income received by the crew of registered ships; (iii) an exemption of registration fees; and (iv) a special regime for ship mortgages.¹¹⁶ Furthermore, ships registered at MAR are subject to less stringent provisions regarding the nationality of the crew—only the commanding officer and 30% of the crew must be composed of (i) Portuguese nationals; (ii) nationals of a Member State of the European Union; (iii) nationals of a Member State of the EEA; or (iv) nationals of a Portuguese-speaking country.¹¹⁷

However, there are neither exceptions nor special regimes regarding the required technical certification—they still must comply with the same international regulations, procedures and practices as the traditional shipping registry—nor regarding the flag State control, which is performed according to the same rules and by the same entities as the traditional registry—DGRM or classification societies.¹¹⁸ This could explain why Portugal has been sometimes identified as one of the countries that have chosen to maintain a substantial link with the ships flying its flag.¹¹⁹

However, it should be noted that Decree-Law No. 166/2019 does not apply to ships registered in MAR, so the certification of the crew is out-of-step with that of the traditional registry.¹²⁰ This and the delay in approving amendments to

¹¹⁵ See, Article 4 of Decree-Law No. 96/89. See also, Faria, *O (novo) direito da segurança marítima*.

¹¹⁶ See, Articles 24-28 of Decree-Law No. 96/89. See also, C. Celorico Palma, “A Tributação Da Atividade Marítima Em Portugal – Alguns Aspetos Fundamentais,” in *Direito Administrativo Do Mar* (Coimbra: Almedina, 2014), 526.

¹¹⁷ See, Article 28 of Decree-Law No. 96/89. See also, Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

¹¹⁸ Faria, *O (novo) direito da segurança marítima*.

¹¹⁹ Churchill and Lowe, *The Law of the Sea*, 1999.

¹²⁰ Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

the 2006 ILO Maritime Labor Convention might explain why the ITF has singled out MAR as a flag of convenience.

2. Exercising jurisdiction and control

- (i) Application of Portuguese domestic law aboard ships sailing under Portuguese flag

As noted above, flag States exercise jurisdiction over a ship according to their domestic laws. Portuguese domestic law seems to have taken this into account. As for criminal law, the Portuguese Penal Code establishes that Portuguese criminal law applies to acts committed on board Portuguese ships or aircrafts, unless an international convention provides otherwise.¹²¹ As for civil law, the Portuguese Civil Code recognizes that ships are subject to the jurisdiction of their flag State as a corollary of the principle of territoriality.¹²² As for tax law, it is fully applicable, although with numerous caveats. There are multiple tax benefits, including the personal income tax exemption for members of a crew and the tonnage tax, the latter of which allows corporation tax to be assessed according to the tonnage rather than the profit accrued by the operation of the ship.¹²³

A final note on restrictive measures of the European Union.¹²⁴ While it is a truism that acts establishing restrictive measures apply on board any vessel under the jurisdiction of a Member State of the European Union, little thought seems to be given to how this would work. Neither the *Guidelines on implementation and evaluation of restrictive measures (sanctions) in the framework of the EU Common Foreign and Security Policy*¹²⁵ nor the *EU Best Practices for the effective implementation of restrictive measures*¹²⁶ provide guidance to maritime authorities or operators in the shipping sector on this issue. This is despite the fact that these are documents approved by the Council of the European Union precisely

¹²¹ See, Article 4(b) of the Portuguese Criminal Code.

¹²² See, Article 24 of the Portuguese Civil Code. Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

¹²³ See, the legal regime established in Decree-Law No. 92/2018.

¹²⁴ Usually referred to as *EU sanctions*.

¹²⁵ Council of the European Union, "Guidelines on Implementation and Evaluation of Restrictive Measures (Sanctions) in the Framework of the EU Common Foreign and Security Policy," May 4, 2018, <https://data.consilium.europa.eu/doc/document/ST-5664-2018-INIT/en/pdf>.

¹²⁶ Council of the European Union, "EU Best Practices for the Effective Implementation of Restrictive Measures," June 27, 2022, <https://data.consilium.europa.eu/doc/document/ST-10572-2022-INIT/en/pdf>.

to provide guidance to private operators and national authorities alike. However, this gap seems to have already been detected by the European Commission, which has addressed some questions regarding the implementation of the restrictive measures imposed on the Russian Federation by national maritime administrations and the shipping sector.¹²⁷

(ii) Maritime administration

Maritime administration in Portugal is based on two administrative entities—the DGRM and the DGAM, which is represented at the local level by the *Capitanias*. The DGRM carries out both the flag State control and the port State control, thus seemingly ensuring uniformity of procedures followed.¹²⁸ It is also responsible for issuing the relevant technical certifications and conducting all the necessary surveys and inspections. On the other hand, the DGAM also performs flag State controls regarding ships employed solely in national cabotage operations and is responsible for approving crew lists in all ships flying the Portuguese flag and administering national harbors. At the local level, the DGAM is represented by harbormaster’s offices, which act as registry offices and ensure the safety of navigation and the security of ships and crew. The harbormaster is also the local commander of the maritime police, thus ensuring full visibility of all issues regarding maritime administration.¹²⁹

E. Conclusion

In *M/V “Virginia G” (Panama/Guinea-Bissau)*, ITLOS considered that Panama had exercised adequate jurisdiction and control, mainly because it had transposed relevant international regulations, procedures, and practices to its internal legal order and performed flag State controls through a recognized organization.¹³⁰ ITLOS thus established a threshold against which flag States should measure their own compliance. As we have seen above, the measures adopted by the Portuguese authorities seem to meet this threshold as relevant

¹²⁷ See, European Commission, “Consolidated FAQs on the Implementation of Council Regulation No 833/2014 and Council Regulation No 269/2014” (Brussels: European Commission, December 21, 2022), https://finance.ec.europa.eu/system/files/2022-12/faqs-sanctions-russia-consolidated_en_3.pdf.

¹²⁸ Andrade Dias, “Poderes Administrativos Sobre Navios.”

¹²⁹ Januário, *Manual de direito internacional. Tomo II, O direito do mar e questões de direito marítimo*.

¹³⁰ *M/V “Virginia G” (Panama/Guinea-Bissau)*, Judgment, pp. 45–46.

international regulations, procedures and practices have been transposed to its internal legal order and there are provisions on performing flag State control, either directly or through a recognized organization.

In fact, the cumulative effect of IMO instruments, European Union law, and domestic law is a stringent legal framework that thoroughly regulates technical aspects and promotes safety at sea and respect for the rights and well-being of the master and crew. Furthermore, it is also evident that there is an administrative structure capable of performing its duties, even if there is room for improvement. Indeed, the Portuguese flag has been included in the *whitelist* of both the Paris MoU and the Memorandum of Understanding on Port State Control in the Asia-Pacific Region,¹³¹ two of the most relevant regional arrangements on port State control.

There are also visible efforts to enforce relevant rules and regulations. In 2021, the Portuguese maritime administration performed four-hundred and twenty-five port State controls under the Paris MoU—although it had committed to conduct five-hundred and thirty-five.¹³²

Portugal has thus apparently been able to strike a balance between accelerated growth of its registered fleet and ensuring an adequate level of enforcement and control of international regulations, procedures and practices. However, it remains to be seen whether this balance can be maintained in the future or if either growth or adequate enforcement will give way.

There are significant risks to the continued growth of MAR. The judgment rendered by the General Court of the European Union that stroke down some of the tax benefits for companies registered in the ICB could prove to be a fearsome blow atop of the MAR's exclusion of the tonnage tax, which was introduced in 2018 exclusively for the traditional registry.¹³³ On the other hand, continued growth might pose additional challenges to a maritime administration with finite resources.

Thus, it seems that, at the moment, the Portuguese flag is more *convenient* than *of convenience*. Continuous vigilance by public authorities and stakeholders will be required to ensure this state of affairs endures.

¹³¹ “Memorandum of Understanding on Port State Control in the Asia-Pacific Region, Signed at Beijing, on December 1, 1993,” accessed January 11, 2023, <https://www.tokyo-mou.org/doc/Memorandum%20rev17.pdf>.

¹³² Secretariat Paris MoU, “Port State Control. Getting Back on Track” (The Hague: Paris MoU, 2021), <https://www.parismou.org/sites/default/files/Annual%20Report%202021%20Paris%20MoU.pdf>.

¹³³ See, European Union Court of Justice, Judgment of September 21, 2022, *Portuguese Republic v. European Commission*, T-95/21, ECLI:EU:T:2022:567 (judgment not available in English).

PART VI |

MARINE SCIENTIFIC RESEARCH

THE RIGHT OF MARINE SCIENTIFIC RESEARCH

Gonçalo Motta and Maria Luís Mendes

A. The Importance of Marine Scientific Research

Marine scientific research is critical to enhancing the understanding of the marine environment and to responding to challenges related to ocean governance. Scientific advances and technological developments drive transformative changes in how, where, and by whom marine scientific research can be conducted. Marine scientific research is key to the development and establishment of marine protected areas and the central tool for marine conservation activities. These advances provide opportunities to expand our knowledge of the marine environment and achieve financial and/or purely academic benefits.

Marine scientific research and technological innovation are also critical to the study and protection of marine life, the capture of value, and sharing the benefits of marine genetic resources in the ABNJ, but not all States have the required capacity to do so.¹ However, marine scientific research brings new challenges for governance, particularly where the legal qualification of research activities is unclear or there is the potential for adverse environmental impacts.²

For coastal States like Portugal marine scientific research plays a key role in advancing research in our marine environment, leading to new discoveries in many fields of marine biology and oceanography, especially in deep-sea ecosystems and habitats. As we strive to discover new species and ecosystems, whether for academic knowledge or commercial exploitation, marine scientific research

¹ See, UNESCO-IOC, “Global Ocean Science Report: The Current Status of Ocean Science around the World”; Kim Juniper, “Information Paper 3 – Technological, Environmental, Social and Economic Aspects,” in *IUCN Information Papers for the Intersessional Workshop on Marine Genetic Resources*, 2013, 15–21, <https://www.un.org/Depts/los/biodiversityworkinggroup/documents/IUCN%20Information%20Papers%20for%20BBNJ%20Intersessional%20Workshop%20on%20MGR.pdf>.

² Harden-Davies Harriet, “The Regulation of Marine Scientific Research: Addressing Challenges, Advancing Knowledge,” in *Routledge Handbook of Maritime Regulation and Enforcement*, ed. Robin Warner and Stuart Kaye, 1. publ, Routledge Handbooks (London New York: Routledge, 2016), 212.

is at the center of the new frontier of discovery for the twenty-first century—the marine depths of our planet and, indeed, *going where no man has gone before*. The Portuguese authorities acknowledged this by stating that

[i]t [...] is based on the importance of scientific knowledge, on the protection of the Ocean, on the strength of traditional and emerging sectors of the blue economy, and on the valorization of marine ecosystem services and the recognition of their role as vectors of sustainable development [...] [it aims] to enhance the contribution of the sea to the country's economy, the prosperity and well-being of Portuguese people, and respond to the great challenges of the decade, strengthening Portugal's position as an eminently maritime nation.³

At the European level, marine scientific research is a central component of the first European Strategy for Marine and Maritime Research⁴ and the Marine Strategy Framework Directive,⁵ both adopted in 2008. Since then, the European Commission has identified a challenge in implementing the Marine Strategy Framework Directive, namely the need to attain the necessary scientific knowledge on the elements that define the state of the marine environment. For many criteria and indicators, the European Commission has identified the need for further development and additional scientific information.⁶

The guiding principles of the Portuguese National Ocean Strategy 2021-2030 are aligned with key international and regional policies and frameworks, such as the European Union's Integrated Maritime Policy,⁷ the Common Fisheries Policy,⁸ and the United Nations 2030 Agenda.⁹ It is worth highlighting that SDG14a of the United Nations 2030 Agenda,¹⁰ is entirely dedicated to development of marine scientific research, by asking States to

³ República Portuguesa, "National Ocean Strategy 2021-2030."

⁴ Publications Office of the European Union, "A European Strategy for Marine and Maritime Research," <https://op.europa.eu/>, October 22, 2022, <https://op.europa.eu/en/publication-detail/-/publication/b949b283-f748-4e58-9d63-0efaf4d71adb/language-en>.

⁵ See, Marine Strategy Framework Directive.

⁶ Some examples of priority marine scientific research areas are listed on the webpage of the European Commission at "Our Oceans, Seas and Coasts," <https://ec.europa.eu/>, accessed December 16, 2022, https://ec.europa.eu/environment/marine/research/index_en.htm.

⁷ European Parliament, "Integrated Maritime Policy of the European Union," <https://www.europarl.europa.eu>, accessed December 26, 2022, <https://www.europarl.europa.eu/factsheets/en/sheet/121/the-integrated-maritime-policy>.

⁸ European Commission, "Common Fisheries Policy (CFP)."

⁹ United Nations, "Transforming Our World: The 2030 Agenda for Sustainable Development."

¹⁰ United Nations, "Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development."

[...] increase scientific knowledge, develop research capacity and transfer marine technology [...] in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.¹¹

Moreover, the United Nations has declared the United Nations Decade of Ocean Science for Sustainable Development 2021-2030, which aims to mobilize the scientific community, policymakers, industry, and civil society around a common agenda for research and technological innovation agenda.¹² The Decade will translate the scientific knowledge and understanding into effective action that supports better ocean management, stewardship, and sustainable development, towards a:

- (i) Clean Ocean;
- (ii) Healthy and resilient Ocean;
- (iii) Predictable Ocean;
- (iv) Safe Ocean;
- (v) Sustainably harvested and productive Ocean; and
- (vi) Transparent and accessible Ocean.

As illustrated, marine scientific research is an important element of scientific and technological development and a priority issue at different levels—national, regional and international. The next years will be of great importance for coastal States like Portugal, interested in valorizing marine ecosystem services and recognizing their role as vectors for sustainable development.

B. The Right of Marine Scientific Research in UNCLOS

The right to marine scientific research—as governed by UNCLOS—is the outcome of lengthy and difficult negotiations. It was part of a *package deal* that included several other issues that attempted to balance opposing interests that were difficult to reconcile, such as those of coastal States, landlocked States, developed States with research technology and capacity to exploit marine resources, and

¹¹ United Nations.

¹² UNESCO, “United Nations Decade of Ocean Science for Sustainable Development (2021-2030),” <https://en.unesco.org/>, accessed December 16, 2022, <https://en.unesco.org/ocean-decade/about>.

developing States that feared being left out of the scientific knowledge and access to those resources. Therefore, the adopted regime is far from perfect, as it contains some inconsistencies, but has so far been applied and complied with by most States Parties and even by non-State Parties that consider it customary international law, as in the case of the United States of America.¹³ Marine scientific research is regulated mostly in Part XIII of UNCLOS,¹⁴ but there are several other provisions related to marine scientific research dispersed in different parts of the Convention.¹⁵

C. The Notion of Maritime Scientific Research

After its adoption, the scope of Part XIII led to numerous interpretations and debates about whether certain activities fall within its requirements. Article 238 of UNCLOS states that

[a]ll States, regardless of their geographical location, and competent international organizations have the right to conduct marine scientific research subject to the rights and duties of other States as provided for in this Convention. Therefore, the right to marine scientific research is not an absolute right.

One of the first difficulties arises from the lack of a definition of *marine scientific research*, which has been described as an important gap leading to uncertainty and abusive behavior. Although several proposals for such a definition were put forward during the UNCLOS negotiations,¹⁶ the difficulties of balancing conflicting interests regarding the scope of the concept, especially the distinction between *pure* and *applied* research and the definition of the regime for each of these categories, could not be overcome.

¹³ Alan Beesley, “The Negotiating Strategy of UNCLOS III: Developing and Developed Countries as Partners—A Pattern for Future Multilateral International Conferences,” *Law and Contemporary Problems* 46, No. 2 (Spring 1983): 183; Tim Daniel, “Marine Scientific Research under UNCLOS: A Vital Global Resource?,” *The International Hydrographic Review*, June 2006. The United States of America was one of the driving forces in the negotiation process leading to UNCLOS, and its non-accession was noted with surprise. Initially, this was attributed primarily to disagreement with the Part I regime, but the marine scientific research regime is now also associated with internal political divergences that prevent a majority in Congress from adopting it. See, Arvid Pardo, “Before and After,” *Law and Contemporary Problems* 46, No. 2 (Spring 1983): 95–105.

¹⁴ See, Articles 238 to 265 of UNCLOS.

¹⁵ See, Articles 19(2)(j), 21(1)(g), 40, 54, 56, 143, 266, 275, 276, 277, 297 of UNCLOS. See also, Sections E and F below.

¹⁶ United Nations, *Marine Scientific Research: A Revised Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (New York: United Nations Publication, 2010), 4–5.

The *Informal Single Negotiating Text* included a provision defining *marine scientific research* as “[...] any study or related experimental work designed to increase mankind’s knowledge of the marine environment,” but the adopted text did not include this or any other definition. Therefore, several readings of the scope of marine scientific research regulations have been developed according to different interests, implying different interpretations of the scope of UNCLOS in this respect.

In particular, the difficulty in defining marine scientific research is largely related to (i) the control of resources and information, (ii) issues related to ocean monitoring with the goal of collecting data on those resources and (iii) security issues. As a rule, the conflicting interests are usually between those that have large coastlines and rich marine resources but¹⁷ weak research capabilities and those that have the technology and means to research those resources but do not have an equally large coastline. In the first instance, States seek to retain control over which research activities are permitted in waters under their jurisdiction, whereas the latter seeks to keep freedom of research as broad—and free—as possible.¹⁸ Clarification of these and other aspects of the marine scientific research regime under UNCLOS would be made possible through the establishment of general criteria and guidelines by States through “competent international organizations [...] ascertaining the nature and implications of marine scientific research.”¹⁹

¹⁷ The debate over the definition of *marine scientific research* during the negotiations derived from the creation of new concepts, those of EEZ and continental shelf, and the rights granted to coastal States over their resources, that created a division of positions between those States with the capacity to investigate these resources and use them for commercial or industrial purposes that wanted to maintain the freedom to investigate regardless of the location and States that lacked that capacity, usually developing coastal State, and wanted to limit that freedom in order to protect their resources.

¹⁸ The United States of America does not consider collection of data to prospect or exploit natural resources or hydrographic surveys as marine scientific research, that it defines as “activities undertaken in the ocean to expand knowledge of the marine environment and its processes” [see, U.S. Department of State, “Marine Scientific Research Consent Overview by the Office of Ocean and Polar Affairs,” <https://www.state.gov/>, accessed September 12, 2022, <https://www.state.gov/marine-scientific-research-consent-overview/>.]

¹⁹ See, Article 251 of UNCLOS. The aid closest to that referred to in Article 251 of UNCLOS is the guide drafted by the Division for Ocean Affairs and the Law of the Sea Office of Legal Affairs. See, United Nations, *Marine Scientific Research: A Revised Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea*, 2010.

D. General Principles related to Marine Scientific Research

Nevertheless, States have agreed on some general principles for the conduct of marine scientific research,²⁰ namely that it shall (i) be conducted exclusively for peaceful purposes [subparagraph a)]; (ii) be conducted with appropriate scientific methods and means compatible with UNCLOS; (iii) not unjustifiably interfere with other legitimate uses of the sea compatible with UNCLOS and shall be duly respected in the course of such uses; and (iv) comply with all relevant regulations adopted in conformity with UNCLOS, including those for the protection and preservation of the marine environment.

Furthermore, States and international organizations have the obligation to cooperate, on the basis of mutual benefit and for peaceful purposes,²¹ in marine scientific research activities, as well as to enable other States to obtain or impart information necessary to prevent and mitigate harm to the health and safety of persons and to the marine environment.²² Cooperation must be encouraged through the adoption of agreements that create favorable conditions for marine scientific research in the marine environment,²³ as well as through the exchange of information and transfer of technology, especially to developing States.²⁴

States and international organizations also have an obligation to promote and facilitate marine scientific research²⁵ by (i) adopting appropriate rules, regulations, and procedures to facilitate access to their harbors; (ii) providing assistance to marine scientific research vessels;²⁶ and (iii) establishing general rules and guidelines to help identify the nature and impact of marine scientific research, as mentioned above.²⁷

²⁰ See, Article 240 of UNCLOS.

²¹ See, Article 242(1) of UNCLOS.

²² See, Article 242(2) of UNCLOS.

²³ See, Article 243 of UNCLOS.

²⁴ See, Article 244(2) of UNCLOS.

²⁵ See, Article 239 of UNCLOS.

²⁶ See, Article 255 of UNCLOS.

²⁷ See, Article 251 of UNCLOS.

E. Marine Scientific Research in the ABNJ — the High Seas and the Area

Regardless of geographical location, all States have the right to conduct marine scientific research in the water column beyond the limits of national jurisdiction when consistent with UNCLOS.²⁸ Marine scientific research is a *freedom of the high seas*, limited only by due regard for the interests of other States and rights relating to the Area, under UNCLOS.²⁹ The Area is defined as the seabed and the ocean floor and subsoil thereof, beyond the limits of national jurisdiction.³⁰ The ISA is the body established for the management of the activities in the Area.

All states have the right to conduct marine scientific research in the Area, in conformity with the provisions of Part XI of UNCLOS.³¹ Marine scientific research in the Area must be carried out “for the benefit of mankind as a whole,”³² and may be carried out either by the Authority or by the States. Both the ISA and the States shall disseminate the research results as they become available. States must also promote international cooperation by participating in international programs encouraging marine scientific research, developed by the Authority or other international organizations for the benefit of developing States and technically less developed States.³³

F. Marine Scientific Research in Areas under National Jurisdiction

The right to marine scientific research in areas under their sovereignty or jurisdiction is subject to certain rules of the Convention that give States the authority to regulate, to varying degrees, the activities of marine scientific research. This regulation is structured on a zonal basis and follows the principle that the use of the ocean is projected from the land—the farther from the coastline, the less power the State in question has to control and regulate marine scientific research activities.

²⁸ See, Article 257 of UNCLOS.

²⁹ See, Article 89 of UNCLOS.

³⁰ See, Article 1(1)(1) of UNCLOS.

³¹ See, Article 256 of UNCLOS.

³² See, Article 143 of UNCLOS.

³³ See, Article 143 of UNCLOS.

1. *The territorial sea, internal waters, and archipelagic waters*

The sovereign rights of coastal States extend beyond their land and internal waters to the territorial sea to a limit of twelve nautical miles.³⁴ In the exercise of their sovereignty, coastal States have the exclusive right to regulate, authorize, and conduct marine scientific research activities in their territorial sea,³⁵ internal waters, and archipelagic waters if it is an archipelagic State.³⁶ Under the exercise of sovereign rights, coastal States that decide to issue an authorization for an marine scientific research activity may also specify the conditions under which the authorization is issued.

It is worth noting that, while exercising the right of innocent passage,³⁷ foreign ships cannot carry out marine scientific research activities. For doing so would be considered detrimental to the peace, good order, or security of the coastal State, and is, therefore, not innocent.³⁸ A similar regime applies to marine scientific research activities during transit passage of foreign ships through straits used for international navigation, which may not be conducted during passage without the express authorization of the bordering State.³⁹

2. *The Exclusive Economic Zone and the Continental Shelf*

In the EEZ—defined as the area adjacent to the territorial sea up to the limit of 200 nautical miles—the sovereign rights of coastal States extend only to resources, including their exploitation, conservation, and sustainable use and management. Regarding several other activities, including marine scientific research, they have jurisdiction only.

The rights of coastal States over the continental shelf are regulated in Part VI of UNCLOS.⁴⁰ The continental shelf includes the seabed and subsoil of submarine areas extending beyond the territorial sea throughout the natural extent of the land area to the outer edge of the continental margin and to the limit of

³⁴ See, Articles 2(1) and 3 of UNCLOS.

³⁵ See, Article 245 of UNCLOS.

³⁶ See, Articles 2 e 49 of UNCLOS.

³⁷ See, Articles 19, 21 and 52 of UNCLOS.

³⁸ See, Article 19 of UNCLOS.

³⁹ See, Articles 40, 45 and 54 of UNCLOS.

⁴⁰ See, Article 56(3) of UNCLOS.

200 nautical miles.⁴¹ Coastal States have sovereign rights over the natural resources of their continental shelf, consisting of mineral and other nonliving resources of the seabed and subsoil and the living organisms of sedentary species.⁴²

Marine scientific research in the EEZ and on the continental shelf requires the consent of the relevant coastal States.⁴³ However, under normal circumstances,⁴⁴ they are expected to consent to requests for marine scientific research from other States or competent international organizations, provided that such requests are consistent with their regulations and the relevant provisions of UNCLOS. To this end, coastal States must establish rules and procedures to ensure that consent is not unreasonably delayed or withheld.⁴⁵

Coastal States have discretion in deciding on a marine scientific research activity and may deny authorization if the requested project is of direct significance to the exploration for and exploitation of living or nonliving natural resources. Authorizations may also be denied if the activity involves drilling on the continental shelf, use of explosives, or introducing harmful substances into the marine environment. Moreover, coastal States have discretion to permit the construction, operation, or use of artificial islands, structures to generate energy from water, currents, and winds, and any structures that may affect their rights in these areas.⁴⁶ Finally, authorizations to conduct marine scientific research activities may also be denied if the requesting party has not provided accurate information about the project or if it has outstanding obligations to the coastal State from a previous research project.⁴⁷

The continental shelf may be further extended to the limit of three hundred and fifty nautical miles from the coastline if certain criteria are met.⁴⁸ In this case, it is often referred to as *the extended continental shelf* or *the outer continental shelf*. Coastal States' discretion to authorize a marine scientific research activity in the

⁴¹ See, Article 76(1) of UNCLOS.

⁴² See, Article 77(3) of UNCLOS defines sedentary species as "organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or the subsoil."

⁴³ See, Article 246(2) of UNCLOS.

⁴⁴ Normal circumstances do not imply existence of diplomatic relations pursuant to Article 246(4) of UNCLOS.

⁴⁵ See, Article 246(3) of UNCLOS.

⁴⁶ See, Articles 246(5), 56, 60 and 80 of UNCLOS.

⁴⁷ See, Articles 246(5) and 248 of UNCLOS.

⁴⁸ See, Article 76(4) of UNCLOS.

outer continental shelf is limited. For they may deny authorization based on the importance of the research project to resource exploration and exploitation only if the activity occurs in an area they have publicly designated as one where exploitation or detailed exploration is already occurring or will occur within a reasonable period of time.⁴⁹

When submitting the application—which must be done six months prior to the start of the marine scientific research activity—the requesting State must provide the coastal State with accurate information, including (i) the nature and objective of the project; (ii) the method and means to be used, including vessel information and a description of the scientific equipment; (iii) the exact geographic areas where the project will be conducted; (iv) the anticipated arrival and departure dates of the research vessel or of deployment and removal of the equipment; and (v) the name of the sponsoring institution, its director, and the name of the person in charge. The requesting State must also inform the coastal State of the extent to which it believes the latter should be able to participate in the project.⁵⁰

States and international organizations that receive authorization to conduct marine scientific research activities on ZEE or the continental shelf must fulfil certain obligations to the coastal States. They must ensure the right of the coastal State to participate or be represented in the marine scientific research project, including on board the research vessel or in the scientific facilities, without having to contribute to the costs of the project. The researching State or organization must also provide the coastal State with preliminary reports, results, and conclusions upon completion of the research. The coastal State may also request access to and evaluation of all data and samples obtained during the marine scientific research project, or assistance with their evaluation or interpretation.⁵¹ The coastal States' authorizations may be suspended or revoked if these obligations are not met or if the marine scientific research activity is not conducted in accordance with the information under which the authorizations were issued.

States and organizations are responsible for ensuring that marine scientific research is not carried out in breach of UNCLOS and are liable for any actions

⁴⁹ See, Article 246(6) of UNCLOS.

⁵⁰ See, Article 248 of UNCLOS.

⁵¹ See, Article 249 of UNCLOS.

taken contrary to the provisions of UNCLOS with respect to marine scientific research. Particularly, their responsibility and liability extend to any damage caused by pollution of the marine environment as a result of the marine scientific research carried out by them or on their behalf.⁵²

G. From Theory to Practice

1. Marine Scientific Research in Areas under National Sovereignty and/or Jurisdiction

As we have seen from the provisions of UNCLOS, the right to marine scientific research is based on solid principles and standards, but these are being met or implemented in different ways, either because coastal States are not managing their marine areas effectively and efficiently,⁵³ or because reporting and information/data sharing obligations are not being met in a timely manner, or at all.⁵⁴

⁵² See, Article 263 of UNCLOS.

⁵³ Keyuan Zou notes that

[...] [h]aving examined the various laws and regulations contained in the UN collection, it can be seen that some of the countries have simply mentioned their rights to regulate MSR within their jurisdictional waters. Only a small number of the above countries have detailed regulations on MSR. Substantially, it can be seen that most of the countries have endorsed the consent system provided for in the UNCLOS. Some of the legal provisions are virtually copied verbatim from the relevant provisions of the UNCLOS, such as the former Soviet regulations. But for some developing countries, their emphasis is put on the exercise of their rights to MSR in their jurisdictional waters. As is commented, the laws of African states “do not reflect the balance achieved between the interests of coastal and other states in the UNCLOS and emphasise the exclusive jurisdiction of coastal states”. For Asian countries, they follow the UNCLOS more closely, such as the laws of Indonesia and Maldives. The Law of South Korea complies with the provisions of the UNCLOS as well. Among the Latin American countries, Mexico enacted its Regulations for the Conduct of Scientific Research by Foreigners in Marine Areas under [Mexico’s] national jurisdiction in 1993 based on the consent regime created in the UNCLOS. One country which has a unique legal practice is the United States. According to its relevant regulations, the United States promised not to exercise its jurisdiction over foreign MSR projects within its EEZ, and foreign nationals or vessels thus do not require permission to undertake MSR in the EEZ of the United States of America. However, the United States applies the consent system to the MSR on its continental shelf and within its territorial sea because it is a party both to the 1958 Convention on the Continental Shelf and the 1958 Convention on the Territorial Sea. It is not clear whether the United States will change its position after it ratifies the UNCLOS [...].

See, ‘Navigational Rights and Marine Scientific Research: A Further Clarification?’, *Securing the Safety of Navigation in East Asia* (Shicun Wu and Keyuan Zou, Chandos Publishing 2013)].

⁵⁴ See, Moore, “Senate Advice and Consent to the Law of the Sea Convention.” An example of an ongoing problem is the fact that the Russian Federation has not responded to a single request from the United States of America for research in its EEZ in the Arctic Ocean since at least 1998, and the number of rejections from marine researchers from the United States of America around the world is significant. See, *unclosdebate*, “UNCLOS Necessary to Protect Rights of Marine Researchers,” <https://www.unclosdebate.org/>, accessed December 22, 2022, <https://www.unclosdebate.org/argument/1301/unclos-necessary-protect-rights-marine-researchers>; Moore, “Senate Advice and Consent to the Law of the Sea Convention.”

Let us consider the case of Portugal.⁵⁵ A preliminary overview of the data collected between 2006 and 2016 offers interesting clues, particularly about the number of applications received, their national origin and the scientific fields covered, the information submitted with the applications, their timing, and the extent to which research institutions and researchers from Portugal participate in the campaigns. During the reporting period, two-hundred ninety-seven applications were received—about one-hundred and ninety (continent), eighty-two (Azores), twenty-five (Madeira)—two-hundred ninety-six of which were authorized. The States of origin of the research vessels were Germany (eighty), France (seventy-four), Spain (forty-nine), the United Kingdom (thirtyone), the United States of America (fifteen), the Netherlands (twelve), Belgium (five), Denmark (four), Italy (four), Russia (three), and some other countries or organizations. We note that the research campaigns of the Spanish teams have increased in recent years.

The average duration of the campaigns was thirty-one days. The research campaigns focused on the following research areas: Deep-sea, genetic resources, and cetacean ecology, primarily in the Azores; fishing stocks and seismic and tsunami studies, primarily in the continental margin; and ocean-climate interactions and ocean modeling in all marine subdivisions. Some of the research campaigns were for training and capacity building for young students and researchers. This is true for most of the campaigns from the United States of America, but also for several campaigns from Germany.

It is noteworthy that about three-quarters of the applications were submitted to the Portuguese MFA without meeting the six-month deadline required by UNCLOS (about one-hundred and ninety out of a total of two-hundred ninety-seven). The States least compliant are Italy (four out of four), Russia (three out of three), France (sixty out of seventy-four), the United States of America (twelve out of fifteen), Denmark (three out of four), Spain (thirty-two out of forty-nine), United Kingdom (twenty out of thirty-one), Belgium (three out of five), the Netherlands (seven out of twelve), and Germany (forty-six out of eighty). The final reports were also not submitted by the research teams in a significant number of cases.⁵⁶ The responsible institutions were formally notified and requested to submit the reports.

⁵⁵ See, Gonçalves and Gameiro, “Marine Scientific Research in the EEZ and on the Continental Shelf: Portugal’s Input to UNCLOS, and Experience in Addressing Foreign Entities’ Requests for Access.”

⁵⁶ See, Article 249(1)(b) of UNCLOS.

Moreover, data was often not made available until after the project was completed, but this may be justified given the time required to process the information and resources collected. It should be noted, however, that the absence of data reports does not necessarily mean that no report was prepared, but only that the Portuguese authorities were not informed in accordance with the provisions of UNCLOS and domestic law.⁵⁷

In some cases, the information submitted with access requests did not indicate what type of equipment was used. This was the case for campaigns by research vessels from the United States of America, the Netherlands, or the United Kingdom, in breach of Article 248(b) of UNCLOS. Portuguese researchers were involved—on board or not—in one-hundred forty-three of the two-hundred ninety-seven research campaigns conducted between 2006 and 2016, most of them from the University of Azores (about forty campaigns), the University of Lisbon (about twenty-seven), the University of Aveiro (about twenty-one) and the University of Algarve (about twenty).

From this analysis, it can be deduced that both coastal States and research institutions must fully respect and comply with UNCLOS and relevant national, regional, and international law governing the right to marine scientific research. The behavior of research institutions must be more transparent, accommodating, and ethical, and coastal States such as Portugal must legislate and regulate the sustainable use of their marine spaces in a way that upholds and preserves its legitimate interests, particularly those of their scientific and innovation communities, and does not compromise the right to marine scientific research as enshrined in UNCLOS. Practical and technical obstacles to fulfilling legally established obligations must also be addressed.

2. Marine Scientific Research in ABNJ

From a purely legal perspective and considering the freedoms of the high seas, the legal framework that currently governs marine scientific research activities aboard scientific cruise vessels in ABNJ is given only by the flag of the research vessel—according to UNCLOS⁵⁸—with different outcomes and fragmented

⁵⁷ See, Article 249(1)(b) of UNCLOS. As a rule, domestic law establishes the same rights and obligations that arise under UNCLOS [see, Section F above].

⁵⁸ See, Articles 87(1)(f) and 94(1) of UNCLOS.

approaches. Although this situation may be considered unproblematic when research is conducted in the middle of the high seas, it becomes more complex when it is conducted in zones adjacent to ABNJ. Many living marine organisms—unicellular or multicellular, simple or complex—move in the sea and/or migrate—alone, through a symbiotic relationship, or through ocean currents—and do not move within the clearly defined legal boundaries established by UNCLOS. This can lead to uncertain situations where, for example, research institutions conduct their marine scientific research in ABNJ that are adjacent to areas within national jurisdiction and sovereignty to avoid compliance with national marine scientific research regulations without sacrificing the objectives of the research.

It is expected that the need to regulate marine scientific research activities in ABNJ will be addressed during negotiations for a BBNJ Agreement. While it is important to preserve the freedom of marine scientific research on the high seas, it is also important to focus on the open and transparent nature of marine scientific research activities under the new instrument and to balance that freedom with the legitimate interests and rights of all States, particularly adjacent coastal States.

So far, the need to legally define the concept of *marine scientific research* is not obvious. However, it is important that the new instrument introduces practical mechanisms where the freedom to conduct marine scientific research in ABNJ is combined with open, transparent, and cooperative behavior, including through the promotion of international cooperation, technology transfer, and capacity building. At the same time, the new instrument must be future-proof in this regard, *i.e.*, provisions must be established that also consider new and future technological advances in the field of marine scientific research.

Despite the rights and obligations established in UNCLOS with respect to marine scientific research (Part XIII) and the development and transfer of marine technology (Part XIV), significant disparities in scientific and technological capacity prevent all people from accessing and using marine genetic resources.⁵⁹ In addition, large differences in marine scientific research legal regimes—namely ABNJ vs. national jurisdictions—lead to *forum shopping*, and a *free for*

⁵⁹ Charlotte Salpin and others, 'Marine Scientific Research in Pacific Small Island Developing States' (2018) 95 *Marine Policy* 363; Geoff Holland and David Pugh, *Troubled Waters. Ocean Science and Governance*, Cambridge University Press, 2010, 3.

all approach may have negative consequences for both the environment and the balance of marine scientific research activities in ABNJ.

The *status quo* is far from ideal, but it is important to refrain from introducing burdensome and complex solutions that only impose constraints and limitations on the scientific community worldwide. The added value of the new instrument in the field of marine scientific research lies in the effective regulation of this freedom in the ABNJ and the consideration of the rules established under UNCLOS in the national jurisdiction, as well as in its efficient implementation and operationalization for the benefit of present and future generations.

H. Final Remarks

Marine resources in areas under national jurisdiction have high scientific and economic potential value. It is necessary to properly inventory and evaluate them, so that the necessary decisions can be made, in a timely manner, based on the best available scientific knowledge, to ensure the conservation and sustainable use of these areas for the benefit of present and future generations. In this regard, Portugal must, among other things, regulate the sustainable use of its marine spaces, for scientific or commercial purposes, in a way that preserves its legitimate interests, particularly those of its scientific and innovation communities, and does not compromise the right to marine scientific research as enshrined in UNCLOS.

As far as marine scientific research in Portugal is concerned, the next years will be dedicated, among others, to the implementation of the Portuguese National Ocean Strategy 2021-2030,⁶⁰ including Strategic Goal 7—*Stimulate Scientific Knowledge, Technological Development and Blue Innovation*—that identifies and establishes the key areas of engagement in marine scientific research. The targets established in the Portuguese National Ocean Strategy 2021-2030 seek to:

- (i) Multiply the number of blue economy startups and the number of innovative blue projects funded by operational programs;
- (ii) Increase by 50 % the number of master's and doctoral in ocean-related scientific areas;
- (iii) Increase the number of ocean-related infrastructures linked under the *Roteiro Nacional de Infraestruturas de Investigação de Interesse Estratégico*;

⁶⁰ República Portuguesa, "National Ocean Strategy 2021-2030."

- (iv) Increase by 30 % the number of days at sea for ocean research ships; and
- (v) Multiply the number of applications for industrial property rights—patents, brands, and design—with national origin in ocean and related technologies—technology, industrial, training.

Marine scientific research will also be central in the engagement with the United Nations Decade of Ocean Science.⁶¹ Due to the vast marine area under Portuguese sovereignty or jurisdiction, Portugal has a responsibility to mobilize all stakeholders in Portuguese society to find—in an inclusive and collaborative way—effective responses to the identified challenges and to play an active role in achieving the goals and objectives of the United Nations Decade of Ocean Science.⁶²

⁶¹ See, Luís Menezes Pinheiro, “Portugal e a Década das Nações Unidas das Ciências do Oceano para o Desenvolvimento Sustentável 2021-2030,” *Revista dos Negócios Estrangeiros Oceanos*, No. 22 (July 2022): 2021–30.

⁶² European Commission, “Common Fisheries Policy (CFP).”

CHAPTER 19 |

OCEAN SCIENCE: THE BENEFITS OF MARINE SCIENTIFIC RESEARCH FOR THE OCEAN ECOSYSTEM AND FOR SOCIETY

Helena Telino Neves and Giuliana Fazio

“The sea with an end can be Greek or Roman: the endless sea is Portuguese.”¹

“It’s time for a revolution in ocean science.”²

A. Introduction

Although the oceans cover more than two-thirds of the planet, contain 97% of the Earth’s water, and represent 99% of the living space on the planet by volume,³ scientific knowledge, especially about the deep sea, is still relatively scarce. In this context, this chapter intends to demonstrate the benefits of marine scientific research for the conservation of the ocean ecosystem and for society as a whole.

To do so, the authors first make a foray into the objectives envisaged in the context of SDG 14, *Conserve and Sustainably Use the Oceans, Seas and Marine Resources*,⁴ which is related to scientific research, information and cooperation.

Next, the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) and its goals not only to promote ocean science research and knowledge exchange, but also to support countries to implement the Sustainable Development Goals are addressed.⁵ The special relevance Portugal

¹ Free translation of “Que o mar com fim será grego ou romano; O mar sem fim é português” (Fernando Pessoa, *Mensagem*, 44 (Lisboa: Macau: Imprensa Nacional de Macau, 1959), 58.)

² *Secretary-General of the United Nations’ Remarks at the High Level Launch – First International Ocean Decade Conference*, Online, 2021, 25:03 to 25:05, <https://www.youtube.com/watch?v=BPBjWEe9IIM&t=1477s>.

³ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁴ United Nations.

⁵ UNESCO-IOC, “The United Nations Decade of Ocean Science for Sustainable Development (2021-2030) Implementation Plan,” IOC Ocean Decade Series, 20. (Paris: UNESCO, 2021), <https://unesdoc.unesco.org/ark:/48223/pf0000377082.locale=en>; United Nations, “Sustainable Development Goals of the United Nations.” See also, General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/RES/70/1 (October 21, 2015), available at undocs.org/en/A/RES/70/1.

attaches to the subject of this chapter is considered in light of its commitments to achieve SDG 14.⁶ Finally, it is showed how marine scientific research can benefit the ocean ecosystem and society from an ocean science perspective.

B. The Sustainable Development Goal 14 — Life Below Water

On September 25, 2015, the General Assembly adopted a resolution establishing an action plan for new global sustainable development goals for the next fifteen years.⁷ The SDGs aim to continue and expand the targets set by the MDG, which were established for the decade 2000-2015.⁸

Changing the concept of poverty to include the term *sustainable* in development and economics has led to consensus within the United Nations on the definition of the global development goals. The SDGs must be achieved by 2030. This set of programs, actions, and guidelines that lead the work towards sustainable development has been systematized into seventeen goals and one-hundred and sixty-nine targets. The former are integrated and indivisible, balancing the three dimensions inherent in the concept of sustainable development: economic, social, and environmental.⁹

To a certain extent, the ocean and its preservation are linked to many of these goals, such as poverty and hunger eradication, economics, transportation or energy production. However, there is one goal that is directly related to ocean science, and that is SDG 14, *Conserve and Sustainably Use the Oceans, Seas and Marine Resources*.¹⁰ The United Nations has set ten targets and ten indicators to achieve this goal, which requires expanding scientific knowledge about the oceans. These ten targets are:

- (i) Reduce marine pollution (Target 14.1);
- (ii) Protect and restore ecosystems (Target 14.2);
- (iii) Reduce Ocean acidification (Target 14.3);

⁶ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁷ General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*.

⁸ United Nations, “Millennium Development Goals.”

⁹ See, General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*.

¹⁰ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

- (iv) Sustainable fishing (Target 14.4);
- (v) Conserve coastal and marine areas (Target 14.5);
- (vi) End subsidies contributing to overfishing (Target 14.6);
- (vii) Increase the economic benefits from sustainable use of marine resources (Target 14.7);
- (viii) Increase scientific knowledge, research and technology for ocean health (Target 14.A);
- (ix) Support small scale fishers (Target 14.B); and
- (x) Implement and enforce international sea law (Target 14.C).

Accordingly, the scaling up of ocean science has been specified in Target 14.A as follows:

[i]ncrease scientific knowledge, develop research capacity, and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.

Such a goal aims to increase scientific knowledge, develop research capacity and transfer marine technology by 2030, using only the “[...] proportion of the total research budget allocated to research in the field of marine technology,”¹¹ as an indicator of achievement. It is worth mentioning that this goal is related to the fact that marine scientific research is “[...] a relative newcomer to the law of the sea.”¹² While UNCLOS has devoted an entire section of twenty-eight articles to marine scientific research,¹³ its practical implementation may raise concerns, such as its spatial dimension or its functional application.¹⁴

In this context, it is important to recall that since 2016, when the United Nations completed the first World Ocean Assessment, the international organization has declared that “[...] humankind is running out of time to start managing the ocean

¹¹ United Nations, “SGG Tracker: Conserve and Sustainably Use the Oceans, Seas and Marine Resources,” <https://sdg-tracker.org/oceans>, accessed December 18, 2022, <https://sdg-tracker.org/oceans>.

¹² Emmanuella Doussis, “Marine Scientific Research: Taking Stock and Looking Ahead,” in *The Future of the Law of the Sea*, ed. Gemma Andreone (Cham: Springer International Publishing, 2017), 89, http://link.springer.com/10.1007/978-3-319-51274-7_5.

¹³ See, Articles 238–265 of UNCLOS.

¹⁴ Doussis, “Marine Scientific Research.”

sustainably.”¹⁵ To address the many issues facing ocean stakeholders worldwide, the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) has been envisioned as an opportunity to discuss ocean health and focus on how ocean science can be made suitable to support sustainable ocean management and address ocean-related risks,¹⁶ as explored below.

C. The United Nations Decade of Ocean Science for Sustainable Development (2021-2030)

In order to develop a common framework to ensure that ocean science can support countries in implementing the 2030 United Nations Agenda for Sustainable Development¹⁷—including the practical implementation of SDG 14 at the global, regional, and local levels¹⁸—the United Nations declared 2021-2030 the Decade of Ocean Science for Sustainable Development on December 5, 2017.

The Decade of Ocean Science for Sustainable Development is intended to provide a unique opportunity to strengthen the management of oceans and coasts for the benefit of humanity through an interface between science and policy. In this context, it will contribute to (i) the international cooperation needed to develop scientific research and innovative technologies that can bring ocean science and society together; and (ii) the United Nations processes to protect the ocean and its resources, including UNCLOS.¹⁹

As the Global Ocean Science Report 2017 notes,²⁰ the asymmetry in the number of scientific publications between countries reveals an unevenly distribution of knowledge production for conducting ocean science research, including SDIS, least developed countries and landlocked developing countries. Therefore, it is also a core objective of the Decade of Ocean Science for Sustainable Development

¹⁵ Vladimir Ryabinin, “Foreword to the United Nations Decade of Ocean Science for Sustainable Development 2021-2030. Implementation Plan.” 2020, ii., <https://unesdoc.unesco.org/ark:/48223/pf0000373298.locale=en>.

¹⁶ Ryabinin, “Foreword to the United Nations Decade of Ocean Science for Sustainable Development 2021-2030. Implementation Plan,” 2020.

¹⁷ United Nations, “Transforming Our World: The 2030 Agenda for Sustainable Development.”

¹⁸ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

¹⁹ UNESCO-IOC, “The Science We Need for the Ocean We Want: The United Nations Decade of Ocean Science for Sustainable Development (2021-2030),” IOC Ocean Decade Series (Paris: UNESCO, 2020), 4, <https://unesdoc.unesco.org/ark:/48223/pf0000265198.locale=en>.

²⁰ “Global Ocean Science Report: The Current Status of Ocean Science around the World,” IOC Ocean Decade Series (Paris: UNESCO, 2017), 5–6, <https://unesdoc.unesco.org/ark:/48223/pf0000250428.locale=en>.

to provide coordination between research programmes through the creation of a database and the sharing of scientific knowledge supported by research capacity building, especially in developing countries.

In such a context, it is paramount to note the practical importance that international cooperation, as the Decade of Ocean Science for Sustainable Development relies not only on the exchange of existing knowledge and technologies, but also on new collaborations to improve and expand the global scientific capacity needed to gather specific information and develop a rapidly evolving blue economy.

To implement the goals of the Decade of Ocean Science for Sustainable Development and facilitate global communication, the 2022 United Nations Ocean Conference had as its guiding theme *Scaling up ocean action based on science and innovation for the implementation of Goal 14: stocktaking, partnerships and solutions*. It was attended by more than 6.000 participants, including twenty-four heads of State and government and over 2.000 civil society representatives.

After admitting a “collective failure” to achieve ocean goals,²¹ leaders of more than one-hundred and fifty countries agreed to take science-based and innovative action to address the plight of the oceans.²² Along with this agreement, nearly seven-hundred pledges were made to address the ocean crisis by various stakeholders, including members of civil society, businesses and scientific communities.

As part of the voluntary commitments, Sweden has pledged to support increased scientific collaboration, including by providing USD 400.000 in 2022 to ICO-UNESCO for the Decade of Ocean Science for Sustainable Development to support work on SDG 14.3.²³ Besides, AOSIS released the *Declaration for the Enhancement of Marine Scientific Knowledge, Research Capacity and Transfer of Marine Technology to Small Island Developing States*.²⁴

²¹ United Nations, “UN Ocean Conference Ends with Call for Greater Global Commitment to Address Dire State of the Ocean,” [https://News.Un.Org\(blog\)](https://News.Un.Org(blog)), July 1, 2022, <https://news.un.org/en/story/2022/07/1121802>.

²² United Nations, “Dire State of Ocean’s Health Met with Tide of Pledges at UN Ocean Conference, as Lisbon Declaration Launches New Chapter for Ocean Action,” *Sustainable Development Goals*, July 1, 2022, <https://www.un.org/sustainabledevelopment/blog/2022/07/dire-state-of-oceans-health-met-with-tide-of-pledges-at-un-ocean-conference-as-lisbon-declaration-launches-new-chapter-for-ocean-action/>.

²³ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development”; United Nations, “Dire State of Ocean’s Health Met with Tide of Pledges at UN Ocean Conference, as Lisbon Declaration Launches New Chapter for Ocean Action.”

²⁴ AOSIS, “Declaration for the Enhancement of Marine Scientific Knowledge, Research Capacity and Transfer of Marine Technology to Small Island Developing States,” June 27, 2022, <https://www.aosis.org/wp-content/uploads/2022/06/AOSIS-Declaration-UN-Ocean-Conference-2022.pdf>.

In addition to the set of commitments made, the 2022 United Nations Ocean Conference was the stage for the unanimous adoption of the Lisbon Declaration. In this political declaration countries agreed to take specific actions, e.g., to reduce greenhouse gas emissions from international maritime transportation, especially shipping, as well as to acknowledge the important role of indigenous, traditional, and local knowledge and practices held by indigenous peoples and local communities.²⁵ But aside from co-hosting the 2022 United Nations Ocean Conference, it is important to note that Portugal has contributed and committed itself to achieving the goals of the United Nations Decade of Ocean Science for Sustainable Development.

D. Portugal and the United Nations Decade of Ocean Science for Sustainable Development

The relationship of Portugal and its citizens to the ocean is historical. Portugal is an oceanic country with a coastline of about 2,500 kilometers and one of the largest EEZ in the world, covering 1.7 million square kilometers and containing a great diversity of ecosystems and resources.²⁶

In this context, it is worth noting that Portugal is not only bound by the commitments of the 2030 United Nations Agenda for Sustainable Development, but since its negotiations,²⁷ it has also been committed to the protection and sustainable use of the oceans. Portugal has played a key role in the inclusion of a goal dedicated exclusively to the protection of the oceans in the 2030 United Nations Agenda for Sustainable Development, and since its adoption, the country has been committed to actively contribute to its implementation.²⁸

For this reason, Portugal ended up co-hosting the 2022 United Nations Ocean Conference—as mentioned in the previous section of this chapter—and acted as a co-facilitator in negotiating the final declaration *Our Ocean, Our Future: Call for*

²⁵ United Nations, “Dire State of Ocean’s Health Met with Tide of Pledges at UN Ocean Conference, as Lisbon Declaration Launches New Chapter for Ocean Action.”

²⁶ República Portuguesa, “National Ocean Strategy,” 2021, https://www.dgpm.mm.gov.pt/_files/ugd/eb00d2_b2cf9034fcc84867be8d08d69435c3bc.pdf.

²⁷ United Nations, “Transforming Our World: The 2030 Agenda for Sustainable Development.”

²⁸ Direção-Geral de Política do Mar, “Agenda 2030 / SDG14. Report on the Implementation of SDG14.” (Lisbon: Portuguese Government), accessed December 18, 2022, <https://www.dgpm.mm.gov.pt/agenda-2030-en>.

Action in support of the implementation of Sustainable Development Goal 14 and the 2030 United Nations Agenda for Sustainable Development.²⁹

As far as international cooperation is concerned, the Cooperation Agreement for the Protection of the Coasts and Waters of the North-East Atlantic against Pollution³⁰ is an international cooperation instrument concluded between Spain, France, Morocco, Portugal, and the European Union—then the European Economic Community—with the general objective of ensuring cooperation between the contracting parties in the event of marine pollution.³¹

However, Portugal is not only a party to international agreements, but has also taken an international leadership role when it comes to the sustainable management of the oceans. For example, Portugal has joined the High-Level Panel for the Sustainable Ocean Economy, which includes the Prime Minister and the United Nations Global Compact,³² whose mission is to help companies take action on the 2030 United Nations Agenda and achieve the SDGs.³³

With a view to achieving SDG 14,³⁴ in 2017 and 2018, the Portuguese government pledged to fulfill nineteen voluntary commitments that were publicly announced at high-level international conferences on the ocean. These commitments range from reducing marine pollution by developing technological platforms and tools that promote the circular economy of the sea, to raising awareness about the sustainable use of our oceans by the Blue School Programme (*Escola Azul*).³⁵ With respect to SDG 14.A, Portugal has specifically committed to:

- (i) Promote and support the development of a strong and dynamic maritime research and innovation network through the establishment of the Port Tech Cluster in Lisbon and the Atlantic Observatory in the Azores, focusing on both the North and South Atlantic;

²⁹ General Assembly resolution 71/31, *Our ocean, our future: call for action*, A/RES/71/312 (July 14, 2017), available at undocs.org/en/A/RES/71/312.

³⁰ Cooperation Agreement for the protection of the coasts and waters of the North-East Atlantic against pollution, October 17, 1990, UNTS 56805. 4.

³¹ Direção-Geral de Política do Mar, “Lisbon Agreement,” <https://www.dgpm.mm.gov.pt/>, accessed December 18, 2022, <https://www.dgpm.mm.gov.pt/lisbon-agreement>.

³² United Nations Global Compact, “Our Mission,” <https://www.unglobalcompact.org/>, accessed December 18, 2022, <https://www.unglobalcompact.org/what-is-gc/mission>.

³³ Direção-Geral de Política do Mar, “Agenda 2030 / SDG14. Report on the Implementation of SDG14.”

³⁴ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

³⁵ República Portuguesa, “Escola Azul,” accessed December 31, 2022, <https://escolaazul.pt/en>.

- (ii) The adoption of public policies and raise international awareness on the issue of *Oceans and Human Health*;
- (iii) Substantially increase funding for deep-sea scientific research, including research on the environmental impacts of seabed mining, through participation in the JPI Oceans Initiative;
- (iv) Provide EUR 3.000.000 by 2020 to support the modernization of the National Information and Communication Technology Systems on Ocean Environment Management Protection and Economic Activities;
- (v) Support the transfer of scientific knowledge and technologies to SIDS and LDCs through the CPLP; and
- (vi) Provide EUR 500.000 until the end of 2021 to support the preparation and launch phase of the United Nations Decade of Marine Science for Sustainable Development.

Recently, on the occasion of the 2022 United Nations Ocean Conference, Portugal presented its contributions to the concept notes of the proposed Interactive Dialogues in a twenty-five-page document.³⁶ On Dialogue 6, *Increasing Scientific Knowledge and Developing Research Capacity and Transfer of Marine Technology*, the challenges and possible areas for new partnerships were discussed, in addition to the status and trends of the topic. In this sense, Portugal stated that challenges and opportunities related to the development of scientific research and technology transfer are connected with factors such as

[...] lack of training, infrastructures, and resources to properly conduct work at sea; scarcity of information, especially in more remote areas, including difficulties in sampling; lack of standard metadata and data, and lack of multidisciplinary studies and approaches, connecting different fields of knowledge.³⁷

The Portuguese government also addressed the fact that the establishment of new partnerships between research centers combining robotics and new technologies is crucial for strengthening the relationship between different scientific and operational components, citing as a good example in this regard, the international nonprofit

³⁶ República Portuguesa, “Contribution from the Portuguese Delegation for the Concept Notes of the Interactive Dialogues at the 2022 United Nations Ocean Conference,” 2022, https://sdgs.un.org/sites/default/files/2022-02/Interactive_Dialogues_Contribution_from_Portugal_2022.pdf.

³⁷ República Portuguesa, 9.

organization for the development of scientific and technological applications in the Atlantic region—the Atlantic International Research Centre.³⁸

Finally, the value of cooperation between countries, particularly between developed and least developed countries—SIDS and landlocked developing States included—was noted, as well as the need for cooperative mechanisms, especially in capacity building and transfer of marine technology.³⁹

Having envisioned the role of Portugal in the United Nations Decade of Marine Research for Sustainable Development, it is still necessary to discuss the importance of marine scientific research and its benefits from an ocean science perspective.

E. Marine Scientific Research and Its Benefits from an Ocean Science Perspective

The United Nations Decade of Ocean Science is a call for States to take coordinated actions to achieve sustainable development through the goals set out in the SDG, in particular Target 14.A.⁴⁰ By recognizing the primary role of ocean science in improving social, cultural, environmental, and economic quality, the United Nations Decade for Ocean Science provides an opportunity to highlight the benefits of ocean science to ecosystems and society, particularly through the sharing of national ocean knowledge and the integration of local action with global goals.

Therefore, it is important to clarify two aspects. *First*, it is crucial to understand that in the context of the United Nations Decade of Ocean Science, “[...] the ocean is considered a part of the larger Earth system stretching from the coast to the open sea and from the ocean surface to the deep ocean seabed.”⁴¹ In other words, it is a comprehensive and dynamic concept. *Second*,

[t]he term ‘Ocean Science’ incorporates natural and social science disciplines including interdisciplinary topics; the technology and infrastructure that supports ocean science; the application of ocean science for societal benefit,

³⁸ República Portuguesa, 9–10.

³⁹ República Portuguesa, 10.

⁴⁰ United Nations, “Goal 14. Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development.”

⁴¹ UNESCO-IOC, “The United Nations Decade of Ocean Science for Sustainable Development (2021-2030) Implementation Plan.”

including knowledge transfer and applications in regions that are lacking science capacity; and the science-policy and science innovation interfaces. It considers the land-sea, ocean-atmosphere, and ocean-cryosphere interactions.⁴²

Therefore, the concept of *ocean science* is broad and should not be confused with *oceanography* or *marine sciences*, as it encompasses these and other scientific branches. To put it differently, from an ocean science perspective, marine scientific research is interdisciplinary and concerned with the production of knowledge in an interrelated way that addresses the potential of the oceans through a threefold dimension—environmental, economic and social. In addition, *ocean science* recognizes the intersections between policy and innovation and embraces local and indigenous knowledge. So, what are the benefits of marine scientific research to the ocean ecosystem and society from an ocean science perspective?

Over the last decade, a phenomenon of alienation among branches of knowledge has been observed. This phenomenon has contributed to the spread of scientific denial, including, *e.g.*, the issue of climate change.

Restricted access to research results indicates knowledge deficits among the public and such deficits can create opportunities for the erroneous and misleading dissemination of false scientific knowledge through the spread of fake news and the questioning of already scientifically established data and facts, such as the theory that the Earth is not round or ideas of vaccine ineffectiveness. Moreover, the compartmentalization of knowledge discourages investment in science, innovation and technology.

Ocean Science seeks to return the idea of utilitarianism of knowledge, that is, the idea that the knowledge produced has practical applications. This promotes the concept of transformative science. Knowledge based on co-participation redefines the role of scientific production. Society becomes both the creator and the recipient of the knowledge development process. It contributes to a variety of potential solutions to controversial issues that are forward-looking and geographically broader, including knowledge transfer and applications in regions that lack scientific capacity.

Considering diverse viewpoints, including the knowledge of local and indigenous communities, generates interest in ocean-related issues and promotes

⁴² UNESCO-IOC, 11.

behavior change. Being part of the process is motivating. Integrating different forms of knowledge is especially important. It is essential to disseminate the results of scientific knowledge.

It should also be noted that human beings have always benefited from the ocean and its various ecosystem services. These can be considered as the added value that human beings receive from nature, resulting directly or indirectly from the functioning of ecosystems.

These ecosystem services can be divided into (i) provisioning services—food, raw materials; (ii) regulating services—maintenance of air quality, climate regulation; (iii) supporting services—oxygen production, nutrient recycling, habitat provision; and (iv) cultural services.

The idea of ecosystem services is emphasized in their benefits, which clearly denounces the utilitarian anthropocentrism that underlines the concept. However, marine scientific research may have other goals. On the one hand, research may be concerned with specific marine resources, with the primary concern of determining to whom they belong and under what conditions they can be used. On the other hand, research may aim at the conservation of the elements of nature *per se*, since they have an ecological function in maintaining the balance of the environment.

In ocean ecosystems, a material aspect can be identified, characterized by the individualization of marine resources as tangible and concrete elements with economic, social and cultural viability. Likewise, there is an intangible aspect that refers to the intangible qualities of the marine ecosystem as an environmental asset responsible for maintaining ecological balance.

Regardless of the utilitarian aspect, it is obvious that marine resources and ecosystems benefit from the results of scientific research regarding biodiversity, pollution control, measures to protect against the effects of sea-level rise, and other studies to ensure ocean resilience.

When it comes to finding systemic solutions to global problems—in spite of difficulties—the international law of the sea, particularly through the provisions of Part XIII of UNCLOS, seeks to balance State sovereignty and consensus with the need to ensure some public sharing of natural resources and knowledge for the benefit of the humankind. Marine scientific research from an ocean science perspective involves not only an awareness of the need for cooperation, but also

the realization of a joint collaboration among various actors—States, international organizations, private entities, and NGOs. The changing dynamics in knowledge production also reflect the inability of States to address environmental challenges alone. Indeed, it is the common interest that matters and transcends the envious interests of States.

The methodological models of marine scientific research from an ocean science perspective benefit ocean ecosystems and society, and offer the opportunity of finding common solutions to global challenges because they are based on an increase in interdisciplinary scientific knowledge in an integrated manner.

F. Conclusion

Having addressed the targets of the SDG 14—Conserve and Sustainably Use the Oceans, Seas and Marine Resources and the United Nations Decade of Ocean Science for Sustainable Development, this chapter reflects on the benefits of marine scientific research to the ocean ecosystem and society from an ocean science perspective.

To understand sustainable development, one must be aware of the complex relationships that exist in sustaining human health, promoting social well-being, and protecting the environment.

Target 14.A proposes to improve scientific knowledge, research, and technology for ocean health by 2030. In addition to some States already struggling to ensure ongoing research and equitable sharing of ocean data and knowledge in ordinary situations, there are also discrepancies in access to knowledge. In this respect, the United Nations Decade of Ocean Science for Sustainable Development is essential to outline joint actions and find concerted solutions for ocean science. Common global challenges require common solutions.

Portugal has contributed and committed itself to achieving the goals of the United Nations Decade of Ocean Science for Sustainable Development. This chapter provides examples of some of the actions Portugal has taken to fulfill the commitments made in the 2030 Agenda for Sustainable Development. These commitments and actions were analyzed from the perspective of ocean science principles.

Ocean science is based on interdisciplinarity, innovation, the development of technologies, and the provision of knowledge to States with less scientific capacity. Ocean science promotes a paradigm shift in the role of marine scientific research and brings benefits to society and ocean ecosystems by being inclusive and incorporating expertise at all levels, including the fundamental knowledge of indigenous people. Well-informed citizens who are aware of the importance of the oceans are the ones capable of making responsible decisions and adopting prudent attitudes towards the oceans and their resources, thereby contributing to the conservation of marine ecosystems. In this sense, ocean science promotes marine scientific research as a way to collectively and collaboratively address challenges that transcend national boundaries. The future of the oceans—and ultimately, the future of humanity—depends on this revolution. It is time for a revolution in ocean science.

CHAPTER 20 |

GOING BEYOND: PORTUGUESE RESEARCH, EDUCATION, AND POLICY DEVELOPMENTS IN ANTARCTICA

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A. Introduction

Antarctica plays a crucial role in the Earth's systems. The Antarctic Treaty—its governance system—has fifty-four parties representing approximately 65% of the world's population. Issues such as climate change, MPA, tourism, bioprospecting, and fisheries are some of the issues discussed at the ATCM. This chapter aims to provide an overview of the relevance of Antarctica and the work carried out by Portugal in the Antarctic region, in terms of research, education, and policymaking. Portugal has been involved in coordinated Antarctic research since the 1990s, thanks to the International Polar Year 2007-08, and acceded to the Antarctic Treaty in 2010.

Since the 1990s the number of research papers published by Portuguese research teams has increased by 70%. Portugal has already contributed twenty-nine policy papers to the ATCM on a wide range of topics and is engaged in the ATCM's Subsidiary Group on Climate Change Response and Intersessional Contact Group on Education and Outreach. In the field of education, Portugal has been very active with the engagement of approximately 100.000 students in schools in collaboration with eighteen State parties around the world over the last fifteen years. Due to the rapid changes in the Antarctic environment, it is important that we have effective governance in the future to address unresolved issues, that is, maritime claims in Antarctica under the Antarctic Treaty and UNCLOS; MPA in the Area, bioprospecting. Portugal will continue to play an active role in the ATCM and contribute to the science, policymaking, education, and outreach in the Antarctic region.

B. The Importance of Antarctica to Our Planet

Although Antarctica is the least understood continent, it is known to have substantial scientific value and to offer unique opportunities for international and multidisciplinary scientific collaboration on processes of global relevance, including the implementation of key monitoring programs.¹ Antarctica is the coldest and driest continent on Earth, covering around fourteen million square kilometers. It is surrounded by the Southern Ocean, which harbors a great diversity of species, including numerous endemic species such as bivalves, pycnogonids, sponges, fish, cephalopods, crustaceans, penguins, and seals (Figure 1).²

¹ Mahlon C. Kennicutt et al., “Polar Research: Six Priorities for Antarctic Science,” *Nature* 512, No. 7512 (August 2014): 23–25; M.C. Kennicutt et al., “A Roadmap for Antarctic and Southern Ocean Science for the next Two Decades and Beyond,” *Antarctic Science* 27, No. 1 (February 2015): 3–18; José C. Xavier et al., “Future Challenges in Southern Ocean Ecology Research,” *Frontiers in Marine Science* 3 (June 14, 2016), <http://journal.frontiersin.org/Article/10.3389/fmars.2016.00094/abstract>; Annemie R. Janssen et al., “Southern Ocean Action Plan (2021–2030) in Support of the United Nations Decade of Ocean Science for Sustainable Development.” (Zenodo, April 12, 2022), <https://zenodo.org/record/6412191>.

² DKA Barnes and Lloyd Peck, “Vulnerability of Antarctic Shelf Biodiversity to Predicted Regional Warming,” *Climate Research - CLIMATE RES* 37 (October 2008): 149–63; José C. Xavier and S. Peck Lloyd, “Life Beyond the Ice,” in *Exploring the Last Continent*, ed. Daniela Liggett et al. (Cham: Springer International Publishing, 2015), <http://link.springer.com/10.1007/978-3-319-18947-5>; Alex Burton-Johnson et al., “An Automated Methodology for Differentiating Rock from Snow, Clouds and Sea in Antarctica from Landsat 8 Imagery: A New Rock Outcrop Map and Area Estimation for the Entire Antarctic Continent,” *The Cryosphere* 10 (August 2016): 1665–77; Kenneth M. Halanych and Andrew R. Mahon, “Challenging Dogma Concerning Biogeographic Patterns of Antarctica and the Southern Ocean,” *Annual Review of Ecology, Evolution, and Systematics* 49, No. 1 (November 2, 2018): 355–78.

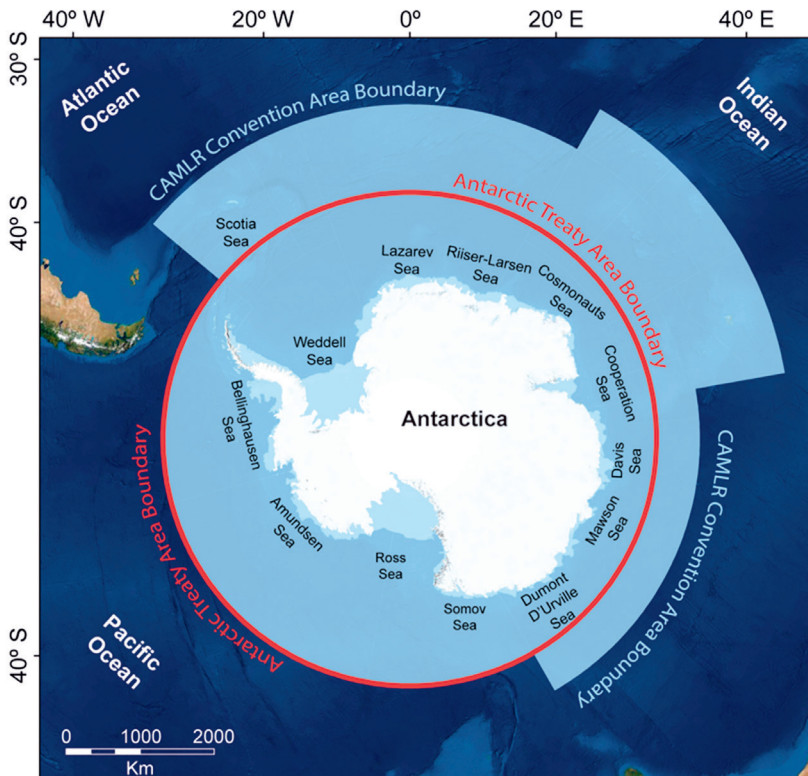


Figure 1. Map of Antarctica with Antarctic Treaty jurisdiction and CCAMLR jurisdiction

Furthermore, it is widely recognized that the Antarctic region plays a decisive role for our Planet on various levels. It is also severely affected by climate change. Some regions are among those that have changed faster in recent decades than any other region on the planet.³ For example, the Antarctic region (i) absorbs 43% of the total anthropogenic CO₂ and 75% of heat;⁴ (ii) influences global ocean circulation

³ V. Masson-Delmotte et al., “IPCC, 2021: Summary for Policymakers,” in *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge and New York, n.d.), 3–32, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf.

⁴ Michael S. Brown et al., “Enhanced Oceanic CO₂ Uptake along the Rapidly Changing West Antarctic Peninsula,” *Nature Climate Change* 9, No. 9 (September 2019): 678–83; Ben Bronselaer et al., “Importance of Wind and Meltwater for Observed Chemical and Physical Changes in the Southern Ocean,” *Nature Geoscience* 13, No. 1 (January 2020): 35–42.

dynamics and marine productivity;⁵ and (iii) may be a major contributor to global sea level rise.⁶ Moreover, there is scientific evidence that Antarctic marine ecosystems are warming and freshening, negatively impacting organisms sensitive to climate change.⁷ Indeed, Antarctic biochemical cycles have been shown to be changing, key ecosystem functions have been altered, biodiversity patterns have shifted, and most Antarctic biota are under a variety of stresses.⁸

The Antarctic region hosts valuable marine resources, mainly fish—Patagonian toothfish *Dissostichus eleginoides*, Antarctic toothfish *D. mawsoni*, and icefish *Champsocephalus gunnari*—and the crustacean Antarctic krill *Euphausia superba*.⁹ The Antarctic krill fishery is the largest krill fishery in the world and is considered one of the least exploited fisheries worldwide.¹⁰ Antarctic fisheries have been managed since 1982 by the CCAMLR under the CCAMLR Convention, according to its conservation principles that prescribe a precautionary and ecosystem-based management approach to Antarctic fisheries.¹¹ The areas covered by this

⁵ J. L. Sarmiento et al., “High-Latitude Controls of Thermocline Nutrients and Low Latitude Biological Productivity,” *Nature* 427, No. 6969 (January 1, 2004): 56–60.

⁶ S. R. Rintoul et al., “Choosing the Future of Antarctica,” *Nature* 558, No. 7709 (June 2018): 233–41.

⁷ Andrew J. Constable et al., “Climate Change and Southern Ocean Ecosystems I: How Changes in Physical Habitats Directly Affect Marine Biota,” *Global Change Biology* 20, No. 10 (October 2014): 3004–25; Julian Gutt, “Research on Climate-Change Impact on Southern Ocean and Antarctic Ecosystems after the UN Paris Climate Conference—‘Now More than Ever’ or ‘Set Sail to New Shores?’,” *Polar Biology* 40, No. 7 (July 1, 2017): 1481–92; A.D. Rogers et al., “Antarctic Futures: An Assessment of Climate-Driven Changes in Ecosystem Structure, Function, and Service Provisioning in the Southern Ocean,” *Annual Review of Marine Science* 12, No. 1 (January 3, 2020): 87–120.

⁸ Julian Gutt et al., “The Southern Ocean Ecosystem under Multiple Climate Change Stresses - an Integrated Circumpolar Assessment,” *Global Change Biology* 21, No. 4 (April 2015): 1434–53; Julian Gutt et al., “Antarctic Ecosystems in Transition — Life between Stresses and Opportunities,” *Biological Reviews* 96, No. 3 (June 2021): 798–821.

⁹ Keith Reid, “Climate Change Impacts, Vulnerabilities and Adaptations: Southern Ocean Marine Fisheries,” in *Impacts of Climate Change on Fisheries and Aquaculture: Synthesis of Current Knowledge, Adaptation and Mitigation Options*. (Australia: FAO Fisheries and Aquaculture Technical Paper, 2018), 363–73; Jilda Alicia Caccavo et al., “Productivity and Change in Fish and Squid in the Southern Ocean,” *Frontiers in Ecology and Evolution* 9 (2021), <https://www.frontiersin.org/articles/10.3389/fevo.2021.624918>.

¹⁰ Lucas Krüger et al., “Antarctic Krill Fishery Effects over Penguin Populations under Adverse Climate Conditions: Implications for the Management of Fishing Practices,” *Ambio* 50, No. 3 (March 2021): 560–71; Bettina Meyer et al., “Successful Ecosystem-Based Management of Antarctic Krill Should Address Uncertainties in Krill Recruitment, Behaviour and Ecological Adaptation,” *Communications Earth & Environment* 1, No. 1 (December 2020): 28.

¹¹ A Constable, “Managing Fisheries to Conserve the Antarctic Marine Ecosystem: Practical Implementation of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR),” *ICES Journal of Marine Science* 57, No. 3 (June 2000): 778–91; Secretariat of the Antarctic Treaty, *Compilation of Key Documents of the Antarctic Treaty System*, 2nd Edition (Buenos Aires: Secretariat of the Antarctic Treaty, 2014); Reid, “Climate Change Impacts, Vulnerabilities and Adaptations: Southern Ocean Marine Fisheries.”

international instrument include geographically and biologically significant regions within and beyond sixty degrees south latitude of the territorial scope of the Antarctic Treaty—defined as areas south of the oceanic Antarctic Polar Front, including waters that are within the EEZ of State parties to the Antarctic Treaty.¹² It also excludes the management of whaling, which is under the jurisdiction of the International Whaling Commission—established prior to the CCAMLR.¹³ The CCAMLR is also responsible for designating the network of MPA in the Southern Ocean. This ocean encompasses 10% of the world’s oceans and is mostly in the Area. The CCAMLR adopted (i) in 2009, its first high seas MPA south of the South Orkney Islands—94,000 square kilometers; (ii) in 2007, the world’s largest international MPA in the Ross Sea—1.5 million square kilometers; and (iii) other MPA on sub-Antarctic islands with States—Australia, France, South Africa, the United Kingdom.¹⁴ Indeed, the Southern Ocean is hailed as one of the most comprehensively managed areas in the world.¹⁵

Finally, the Antarctic region (i) hosts important historical sites; (ii) is of considerable tourist interest; (iii) is a source of educational and outreach activities; and (iv) provides a good example of science-policy interactions under the Antarctic Treaty (Figure 2).¹⁶

¹² See, Figure 1 above.

¹³ Robert J. Hofman, “Sealing, Whaling and Krill Fishing in the Southern Ocean: Past and Possible Future Effects on Catch Regulations,” *Polar Record* 53, No. 1 (January 2017): 88–99.

¹⁴ Cassandra M. Brooks et al., “Progress towards a Representative Network of Southern Ocean Protected Areas,” ed. Yan Ropert-Coudert, *PLOS ONE* 15, No. 4 (April 22, 2020): e0231361.

¹⁵ Cassandra M. Brooks et al., “Science-Based Management in Decline in the Southern Ocean,” *Science* 354, No. 6309 (October 14, 2016): 185–87; Tim Stephens, “An Icy Reception or a Warm Embrace? The Antarctic Treaty System and the International Law of the Sea,” in *Handbook on the Politics of Antarctica*, ed. Klaus Dodds (Cheltenham, UK ; Northampton, MA: Edward Elgar Publishing, 2017); Seth T. Sykora-Bodie and Tiffany H. Morrison, “Drivers of Consensus-based Decision-making in International Environmental Regimes: Lessons from the Southern Ocean,” *Aquatic Conservation: Marine and Freshwater Ecosystems* 29, No. 12 (December 2019): 2147–61.

¹⁶ D. W. H. Walton, ed., *Antarctica: Global Science from a Frozen Continent* (Cambridge ; New York: Cambridge University Press, 2013); Steven L. Chown et al., “Antarctica and the Strategic Plan for Biodiversity,” *PLOS Biology* 15, No. 3 (March 28, 2017): e2001656.

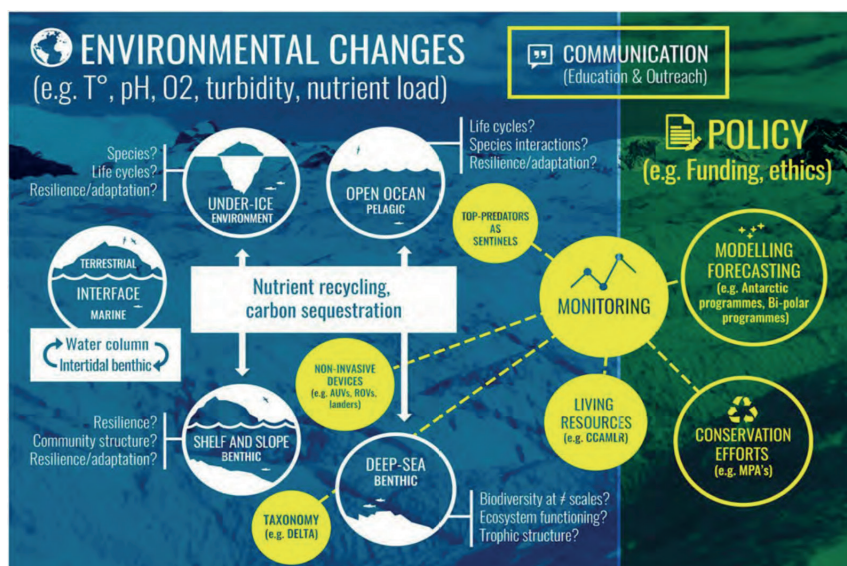


Figure 2. Conceptual diagram illustrating gaps of knowledge in Antarctic marine research, links to monitoring/modeling efforts and policy applications, under a communication (education and outreach) context¹⁷

Indeed, efforts have been made, including by Portugal, for example, (i) to reduce human impacts in the Antarctic region; (ii) to improve science-policy linkages;¹⁸ (iii) to manage fisheries and ecosystems sustainability, e.g., through MPA,¹⁹ (iv) to assess contamination and pollution;²⁰ (v) to implement

¹⁷ Xavier et al., "Future Challenges in Southern Ocean Ecology Research."

¹⁸ Steven L. Chown et al., "Continent-Wide Risk Assessment for the Establishment of Nonindigenous Species in Antarctica," *Proceedings of the National Academy of Sciences* 109, No. 13 (March 27, 2012): 4938–43; Kevin A. Hughes et al., "Antarctic Environmental Protection: Strengthening the Links between Science and Governance," *Environmental Science & Policy* 83 (May 2018): 86–95; Steven L. Chown and Cassandra M. Brooks, "The State and Future of Antarctic Environments in a Global Context," *Annual Review of Environment and Resources* 44, No. 1 (2019): 1–30.

¹⁹ Cassandra M. Brooks et al., "Antarctic Fisheries: Factor Climate Change into Their Management," *Nature* 558, No. 7709 (June 2018): 177–80; Hannah S. Wauchope, Justine D. Shaw, and Aleks Terauds, "A Snapshot of Biodiversity Protection in Antarctica," *Nature Communications* 10, No. 1 (December 2019): 946; Mark A. Hindell et al., "Tracking of Marine Predators to Protect Southern Ocean Ecosystems," *Nature* 580, No. 7801 (April 2, 2020): 87–92.

²⁰ Eduardo Amaro et al., "Assessing Trace Element Contamination in Fildes Peninsula (King George Island) and Ardley Island, Antarctic," *Marine Pollution Bulletin* 97, No. 1–2 (August 2015): 523–27; Catherine Waller et al., "Microplastics in the Antarctic Marine System: An Emerging Area of Research," *Science of The Total Environment* 598 (November 1, 2017): 220–27; Filipa Bessa et al., "Microplastics in Gentoo Penguins from the Antarctic Region," *Scientific Reports* 9, No. 1 (December 2019): 14191; José P. Queirós et al., "High Mercury Levels in Antarctic Toothfish *Dissostichus Mawsoni* from the

the international code for ships operating in Polar waters,²¹ and envisage future scenarios in Antarctic governance.²² In this brief review, we provide an overview of governance of Antarctica and the contributions of Portugal in the areas of science, education, and policymaking.

C. The Governance of Antarctica and Connections to UNCLOS

The Antarctic Treaty, the international agreement that governs the Antarctic region south of sixty degrees latitude, was adopted in 1959 and entered into force in 1961.²³ It is considered one of the most successful international treaties of all time,²⁴ recognizing Antarctica as freely accessible and stipulating that it be used for peaceful and scientific purposes while fostering international cooperation. Indeed, the governance of the Antarctic region is taught worldwide as an example of successful international cooperation in the conservation and sustainable management of its resources.²⁵ As of 2021, the Antarctic Treaty has been signed by fifty-four parties, representing approximately 65% of the world's population.

The Antarctic Treaty has demonstrated the power of science as a tool of policy-making and diplomacy.²⁶ It has also the independent advice of SCAR, which has provided a valuable platform for State parties to agree on (i) the Agreed Measures

Southwest Pacific Sector of the Southern Ocean,” *Environmental Research* 187 (August 2020): 109680; Bernardo Duarte et al., “First Screening of Biocides, Persistent Organic Pollutants, Pharmaceutical and Personal Care Products in Antarctic Phytoplankton from Deception Island by FT-ICR-MS,” *Chemosphere* 274 (July 2021): 129860; Joana Fragão et al., “Microplastics and Other Anthropogenic Particles in Antarctica: Using Penguins as Biological Samplers,” *Science of The Total Environment* 788 (September 2021): 147698; José Seco et al., “Mercury Biomagnification in a Southern Ocean Food Web,” *Environmental Pollution* 275 (April 2021): 116620.

²¹ Also known as *Polar Code*. See, Jeffrey McGee and Marcus Haward, “Antarctic Governance in a Climate Changed World,” *Australian Journal of Maritime & Ocean Affairs* 11, No. 2 (April 3, 2019): 78–93.

²² Rintoul et al., “Choosing the Future of Antarctica.”

²³ Secretariat of the Antarctic Treaty, *Compilation of Key Documents of the Antarctic Treaty System*; José C. Xavier and Peter Convey, “Antarctic: Climate Change, Fisheries, and Governance,” in *Life Below Water*, ed. Walter Leal Filho et al. (Cham: Springer International Publishing, 2020), 1–12, http://link.springer.com/10.1007/978-3-319-71064-8_1-1.

²⁴ Paul Arthur Berkman, ed., *Science Diplomacy: Antarctica, and the Governance of International Spaces* (Washington, D.C: Smithsonian Institution Scholarly Press, 2011); Olav Orheim, “Managing the Frozen Commons,” in *Antarctica*, ed. David W. H. Walton, 1st ed. (Cambridge University Press, 2013), 273–300, https://www.cambridge.org/core/product/identifier/CBO9780511782299A016/type/book_part.

²⁵ Rintoul et al., “Choosing the Future of Antarctica.”

²⁶ Paul Arthur Berkman, “International Spaces Promote Peace,” *Nature* 462, No. 7272 (November 2009): 412–13; David W. H. Walton, Peter D. Clarkson, and Colin P. Summerhayes, eds., *Science in the Snow: Fifty Years of International Collaboration through the Scientific Committee on Antarctic Research* (Cambridge: Scientific Committee on Antarctic Research, 2011); Walton, *Antarctica*.

for the Conservation of Antarctic Fauna and Flora;²⁷ and (ii) the Convention for the Conservation of Antarctic Seals.²⁸ Another primary convention that also applies only to the Southern Ocean is the Agreement on the Conservation of Albatrosses and Petrels under the CMS.²⁹ In 1998, the Madrid Protocol on Environmental Protection entered into force, allowing for the establishment of the CEP. This was intended to provide advice State parties to the Antarctic Treaty on conservation and environmental protection measures and their implementation, and to formulate recommendations based on evidence-based scientific data.³⁰ The Madrid Protocol on Environmental Protection provides for an indefinite prohibition on all activities related to mineral resource activities, with the exception of scientific research.³¹

It also contains six annexes that establish important requirements for the environmental management of activities in Antarctica. These annexes are related to (i) EIA for all proposed activities; (ii) conservation of Antarctic fauna and flora; (iii) waste disposal and management; (iv) marine pollution prevention; (v) area protection and management; and (vi) liability arising from environmental emergencies.³² Since 2007, the CEP has focused on individual and collective efforts on key priorities. These include (i) understanding and responding to the environmental consequences of climate change in the Antarctic region; (ii) managing the risks to biodiversity associated with the introduction of non-native species, including the transfer of native species between bioregions within Antarctica; (iii) adequately managing the environmental impacts of tourism and nongovernmental activities; and (iv) improving the effectiveness of the management of MPA.³³

²⁷ “Agreed Measures for the Conservation of Antarctic Fauna and Flora,” accessed December 18, 2022, <https://leap.unep.org/content/treaty/agreed-measures-conservation-antarctic-fauna-and-flora>.

²⁸ Walton, Clarkson, and Summerhayes, *Science in the Snow*; Secretariat of the Antarctic Treaty, *Compilation of Key Documents of the Antarctic Treaty System*; Ben Saul and Tim Stephens, eds., *Antarctica in International Law* (Oxford ; Portland, Oregon: Hart Publishing, 2015).

²⁹ Mark Zacharias and Jeff Ardron, *Marine Policy: An Introduction to Governance and International Law of the Oceans*, Second edition, Earthscan Oceans (Abingdon, Oxon ; New York, NY: Routledge, 2019).

³⁰ Secretariat of the Antarctic Treaty, *Compilation of Key Documents of the Antarctic Treaty System*.

³¹ See, Article 7 of the Madrid Protocol on Environmental Protection.

³² Hughes et al., “Antarctic Environmental Protection.” The annex on liability was adopted in 2005 but has not yet entered into force.

³³ Orheim, “Managing the Frozen Commons”; Hughes et al., “Antarctic Environmental Protection.”

Among the international treaties relevant to the Antarctic Treaty, UNCLOS is considered an important treaty because both apply to the area below sixty degrees south latitude.³⁴ Article VI of the Antarctic Treaty establishes that,

[...] the provisions of the present Treaty shall apply to the area south of 60° S Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

UNCLOS, which has nearly one-hundred and seventy parties, provides the legal framework for all matters concerning the world's oceans.³⁵ This includes the legal regime for coastal States to extend the maritime area under their jurisdiction to a maximum of three-hundred and fifty miles. The relationship between State parties with coastal areas and such extensions can be contentious, as can be the case with the Antarctic region.³⁶ This is because all seven State parties claiming regions in the Antarctic region—Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom—include coastal areas in their claims and, thus, may in principle wish to extend their claims offshore despite

[n]o acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting, or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.³⁷

To date, these State parties have not claimed jurisdiction over the regions within and beyond sixty degrees south latitude of the territorial scope of the

³⁴ M. J. Peterson, "Antarctic Implications of the New Law of the Sea," *Ocean Development & International Law* 16, No. 2 (January 1986): 137–81; Patrizia Vigni, "The Interaction between the Antarctic Treaty System and the Other Relevant Conventions Applicable to the Antarctic Area," *Max Planck Yearbook of United Nations Law Online* 4, No. 1 (February 9, 2000): 481–542; David W.H. Walton, "UNCLOS versus the Antarctic Treaty," *Antarctic Science* 20, No. 4 (August 2008): 311–311; Natasha B. Gardiner, "Marine Protected Areas in the Southern Ocean: Is the Antarctic Treaty System Ready to Co-Exist with a New United Nations Instrument for Areas beyond National Jurisdiction?," *Marine Policy* 122 (December 2020): 104212.

³⁵ Jill M. Barrett and Richard Barnes, eds., *Law of the Sea: UNCLOS as a Living Treaty* (UNCLOS at 30 (Conference), London: The British Institute of International and Comparative Law, 2016).

³⁶ Vigni, "The Interaction between the Antarctic Treaty System and the Other Relevant Conventions Applicable to the Antarctic Area"; Walton, "UNCLOS versus the Antarctic Treaty"; Linda A. Malone, "The Waters of Antarctica: Do They Belong to Some States, No States, Or All States?," *William & Mary Law School Scholarship Repository* 43, No. 1 (2018): 53–81.

³⁷ See, Article IV of the Antarctic Treaty.

Antarctic Treaty, but Argentina and Australia have submitted claims to parts of the Antarctic's extended continental shelf.³⁸

D. The Role of Portugal in Antarctica in terms of Science, Policy at the ATCMs and Education

Historically, Portugal is associated with the Antarctic region: Fernão de Magalhães is one of the first explorers mentioned when talking about the beginnings of Antarctica (*Terra incognita*).³⁹ With the upsurge of the International Polar Year in 2007-08, Portugal has established itself through scientific activities with other State parties to the Antarctic Treaty,⁴⁰ enabling the establishment of PROPOLAR and successful educational programs.⁴¹ PROPOLAR aims to provide logistical support to the development of polar science in Portugal, with key research activities focused particularly on marine, permafrost and cryosphere, terrestrial, atmospheric, and social sciences.⁴² Portugal acceded to the Antarctic Treaty in 2010 and the Madrid Protocol on Environmental Protection in 2014 and is currently a non-consultative State party to the Antarctic Treaty and participates in ATCM, but is not allowed to take part in government decision-making. To obtain consultative status under the Antarctic Treaty, an interested State party must demonstrate “substantial research activity.”⁴³ Although a mechanism for assessing the acceptability of an application for consultative status has begun to emerge, scientific criteria for a unified assessment are lacking.⁴⁴ Existing State parties apply their own tests, which include political acceptability as well as the value and extent of the scientific research.

³⁸ Zacharias and Ardron, *Marine Policy*.

³⁹ Walton, *Antarctica*.

⁴⁰ José C. Xavier et al., “Polar Marine Biology Science in Portugal and Spain: Recent Advances and Future Perspectives,” *Journal of Sea Research* 83 (October 2013): 9–29; Quirin Schiermeier, “International Polar Year: In from the Cold,” *Nature* 457, No. 7233 (February 2009): 1075–77.

⁴¹ B. Kaiser and S. Zicus, *Polar Science and Global Climate: An International Resource for Education & Outreach* (Essex, UK: Pearson Custom Publishing, 2010), <https://polareducator.org/featured-resources/prb-2/>; José C. Xavier et al., “Education on Biodiversity in the Polar Regions,” in *Biodiversity and Education for Sustainable Development*, ed. Paula Castro et al. (Cham: Springer International Publishing, 2016), 43–56; José C. Xavier et al., “Education and Outreach by the Antarctic Treaty Parties, Observers and Experts under the Framework of the Antarctic Treaty Consultative Meetings,” *Polar Record* 55, No. 4 (July 2019): 241–44.

⁴² José C. Xavier et al., “International Polar Week as an Educational Activity to Boost Science—Educational Links: Portugal as a Case Study,” *Polar Record* 54, No. 5–6 (September 2018): 360–65.

⁴³ See, Article IX(2) of the Antarctic Treaty.

⁴⁴ Andrew D. Gray and Kevin A. Hughes, “Demonstration of ‘Substantial Research Activity’ to Acquire Consultative Status under the Antarctic Treaty,” *Polar Research* 35, No. 1 (January 2016): 34061.

Scientifically, Portugal has an active Antarctic program with an increasing number of research papers published per year, from one to two research papers in the late 1990s to thirty-four papers in 2016—a 70% increase—which is a much higher rate than the growth of the field as a whole (approximately doubled in the same period) (Figure 3).⁴⁵

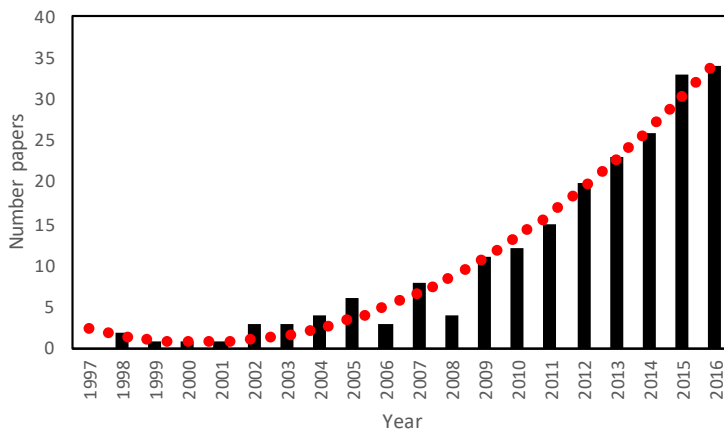


Figure 3. Number of research papers by Portugal from 1997 until 2016,⁴⁶ with a polynomial trend line ($R^2 = 0.97$) in order to demonstrate the increase of Antarctic research by Portuguese teams.

Portugal's research activities in Antarctica are in the middle of the range of the State parties to the Antarctic Treaty in terms of the total number of papers published, which means Portugal is more productive than five of the consultative Parties.⁴⁷ Most of the research papers were written by scientists who are nationals of several countries—with colleagues from the United Kingdom, Spain, the United States of America, Brazil, and Germany—with only 10% of the research papers being written exclusively by Portuguese scientists.

In terms of the policy papers produced at the ATCM, Portugal has contributed with twenty-nine papers by 2021, with four to five papers per year.⁴⁸

⁴⁵ Xavier et al., "International Polar Week as an Educational Activity to Boost Science—Educational Links," September 2018.

⁴⁶ Following José C. Xavier, Andrew D. Gray, and Kevin A. Hughes, "The Rise of Portuguese Antarctic Research: Implications for Portugal's Status under the Antarctic Treaty," *Polar Record* 54, No. 1 (January 2018): 11–17.

⁴⁷ Xavier et al., "International Polar Week as an Educational Activity to Boost Science—Educational Links," September 2018.

⁴⁸ Xavier et al.

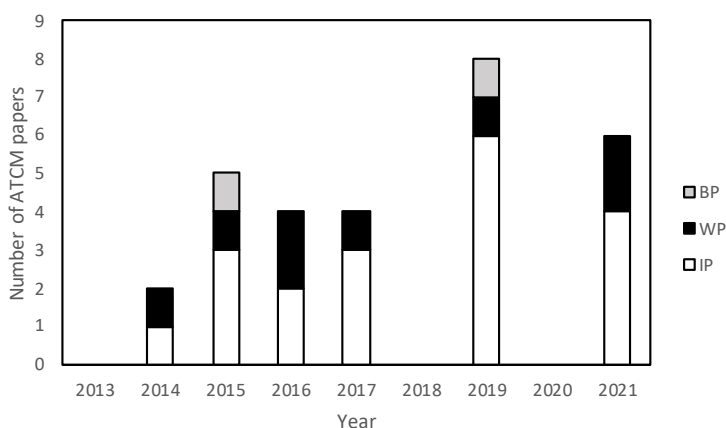


Figure 4. Number of ATCM papers by Portugal.⁴⁹ (Note: 2018 was a special ATCM, with a tight agenda; 2020 there was no ATCM) BP—Background Papers; IP—Information Papers; WP—Working Papers.

The policy papers are usually submitted with other State parties—notably, the United Kingdom, Belgium, Brazil, Bulgaria, and Chile—on education issues relevant to the ATCM and on scientific issues such as permafrost, future scientific challenges, and pollution,⁵⁰ while Portugal is also active in the Subsidiary Group on Climate Change Response and the Intersessional Contact Group on Education and Outreach.

Portugal has been hailed as an educational success story for coordinating various national educational projects with international projection and impact, such as LATITUDE60!, Profession: Polar Scientist and Education PROPOLAR,⁵¹

⁴⁹ Xavier, Gray, and Hughes, “The Rise of Portuguese Antarctic Research.” There were no papers submitted in 2018 because Ecuador did not accept to organize the ATCM and the agenda was considerably shortened that year (ATCM took place in Buenos Aires, Argentina) so Portugal decided to delay its submissions to the following year. Due to COVID, ATCM in Finland was canceled in 2020.

⁵⁰ Xavier et al., “International Polar Week as an Educational Activity to Boost Science—Educational Links,” September 2018; Xavier et al., “Education and Outreach by the Antarctic Treaty Parties, Observers and Experts under the Framework of the Antarctic Treaty Consultative Meetings.”

⁵¹ Kaiser and Zicus, *Polar Science and Global Climate: An International Resource for Education & Outreach*; Sandra Zicus, José Xavier, and Alexandre Trindade Nieuwendam, *Polar Science and Global Climate: An International Resource for Education and Outreach*, ed. Kaiser, Bettina, Allen, Becky, and Zicus, Sandra (Zenodo, 2010), <https://zenodo.org/record/4591018>; J. Baeseman et al., “Early Career Researcher Activities During IPY,” in *Understanding Earth’s Polar Challenges: International Polar Year 2007-2008: Summary*, ed. Igor Krupnik, Canadian Circumpolar Institute, and University of the Arctic, CCIP Occasional Publications Series, No. 69 (Edmonton: CCI Press, 2011); Walton, *Antarctica*; ATCM, *Final Report of the Thirty-Seventh Antarctic Treaty Consultative Meeting, Brasilia, Brasil, 28 April-7 May 2014, Vol. I* (Buenos Aires: Secretariat of the Antarctic Treaty, 2014); Xavier et al., “Education on Biodiversity in the

with participation in various State parties and organizations such as Polar Educators International (PEI Portugal and PEI International),⁵² the Association of Polar Early Career Scientists (APECS Portugal and APECS International), SCAR Capacity Building, Education, and Training Advisory Group with national links to the science teams. One of the examples is the International Polar Week—an educational activity involving polar researchers and educators to promote polar research, *e.g.*, activities such as science talks in schools, webinars, and workshops coordinated in Portugal by APECS Portugal and PEI Portugal.⁵³ Between 2012 and 2021, Portugal involved 139,500 students, two-hundred and fifty schools, 3,300 educators, and two-hundred nineteen polar scientists, and has collaborated with eighteen other State parties—Angola, Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, Chile, France, Germany, New Zealand, the Netherlands, Norway, Mozambique, São Tomé and Príncipe, the United Kingdom, the United States of America, and Uruguay.⁵⁴

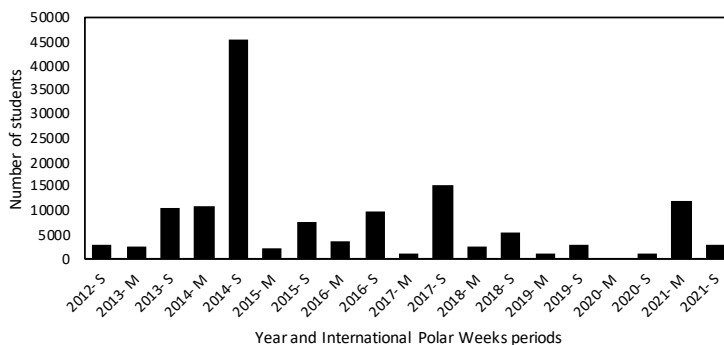


Figure 5. The number of students participating in international polar weeks in Portugal between 2012 and 2021 (S: international polar week in September/October; M: international polar week in March/April)⁵⁵

Polar Regions”; Heidi A. Roop et al., “Building Collaborative Networks across Disciplines: A Review of Polar Educators International’s First Five Years,” *Polar Record* 55, No. 4 (July 2019): 220–26; Xavier et al., “International Polar Week as an Educational Activity to Boost Science—Educational Links,” September 2018.

⁵² Nubia Caramello et al., “Ciência Polar e a Comunicação Entre Estudantes, Educadores e Cientistas,” *Revista Eletrônica Científica Da UERGS* 3, No. 2 (August 25, 2017): 340–71.

⁵³ Xavier et al., “Future Challenges in Southern Ocean Ecology Research”; Xavier et al., “Education on Biodiversity in the Polar Regions”; Xavier et al., “International Polar Week as an Educational Activity to Boost Science—Educational Links,” September 2018.

⁵⁴ Xavier et al., “International Polar Week as an Educational Activity to Boost Science—Educational Links,” September 2018.

⁵⁵ Updated from José C. Xavier et al., “International Polar Week as an Educational Activity to Boost Science—Educational Links: Portugal as a Case Study,” *Polar Record* 54, No. 5–6 (February 19, 2019): 360–65.



Figure 6. Examples of scientists and educators working on education and outreach activities in Portugal

APECS Portugal has also developed a successful online dissemination activity called *Science in the Clear*, where early career scientists translate scientific research into a language understandable to the general public, which had already been adapted by fellow APECS Belgium. Portugal has also participated in the development of the formal discourse on education and outreach under the ATCM. Pursuant to Article 6(1)(a) of the Protocol to Promote the Educational Value of Antarctica and its Environment, numerous initiatives were developed and implemented in the 1990s, followed by the establishment of the Inter-sessional

Contact Group in the framework of the Antarctic Treaty in 2015.⁵⁶ Indeed, the number of papers submitted to the ATCM between 1961 and 2017 shows that papers mentioning “education and outreach” had increased significantly, *i.e.*, thirty-seven papers between 1960-2014 and thirty-seven papers between 2015-2017, confirming a growing interest in this topic.⁵⁷

E. Conclusion: Future of Antarctica and Challenges in Its Governance

Scientifically, key research areas to be addressed in the future include (i) understanding the effects of the Antarctic atmosphere and Southern Ocean on the rest of the planet; (ii) understanding how, where, and why ice-sheets lose mass; (iii) understanding evolutionary processes in and around Antarctica; (iv) understanding how Antarctic life survived and survives; (v) observing space and the universe; and (vi) recognizing and mitigating human impacts.⁵⁸ To support such science, multidisciplinary monitoring, linking biomolecular findings to simulated physical environments, and integrating ecological modeling are as important as regular, reliable (long-term) funding for research.⁵⁹

In the context of the United Nations Southern Ocean Decade,⁶⁰ these scientific challenges require (i) substantial financial support, the development of new monitoring and research technologies; (ii) improved modeling forecasts; (iii) the involvement of recognized stakeholders; and (iv) a strong education and outreach component. Furthermore, international and multidisciplinary research efforts under the direction of SCAR, coupled with more effective two-way interactions between scientists and policy makers under the Antarctic Treaty are

⁵⁶ Xavier et al., “Education and Outreach by the Antarctic Treaty Parties, Observers and Experts under the Framework of the Antarctic Treaty Consultative Meetings.”

⁵⁷ Xavier et al.

⁵⁸ Kennicutt et al., “Polar Research”; Kennicutt et al., “A Roadmap for Antarctic and Southern Ocean Science for the next Two Decades and Beyond”; M.C. Kennicutt et al., “Delivering 21st Century Antarctic and Southern Ocean Science,” *Antarctic Science* 28, No. 6 (December 2016): 407–23; Xavier et al., “Future Challenges in Southern Ocean Ecology Research”; Mahlon C. Kennicutt et al., “Sustained Antarctic Research: A 21st Century Imperative,” *One Earth* 1, No. 1 (September 2019): 95–113.

⁵⁹ J. Gutt et al., “Cross-Disciplinarity in the Advance of Antarctic Ecosystem Research,” *Marine Genomics* 37 (February 2018): 1–17; Janssen et al., “Southern Ocean Action Plan (2021-2030) in Support of the United Nations Decade of Ocean Science for Sustainable Development.”

⁶⁰ “Southern Ocean United Nations Decade: United Nations Decade of Ocean Science for Sustainable Development,” <https://www.sodecade.org/>, accessed December 18, 2022, <https://www.sodecade.org/>.

required to further improve and accelerate governance processes,⁶¹ considering that Antarctic environmental management and regulation (e.g., pollution, tourism, bioprospecting) fail to keep pace with changes in the Antarctic region (e.g., through climate change).⁶²

According to IPCC scenarios,⁶³ Antarctic surface air temperatures will continue to rise in the coming decades and the Southern Ocean will become warmer, fresher, and more acidic, affecting Antarctic fauna, flora, and ecosystems.⁶⁴ These impacts may lead to increasing political pressure and a gradual erosion of the Antarctic Treaty as perceptions of its priorities and effectiveness change.⁶⁵ To avoid such scenarios, effective governance in Antarctica is essential, based on strong actions to

- (i) Mitigate greenhouse gas emissions;
- (ii) Limit human impacts;
- (iii) Promote the collection of freely available science data;
- (iv) Support long-term monitoring programs based on international and multidisciplinary research;
- (v) Engage all relevant stakeholders—especially for policy developments, education, outreach, and social sciences; and
- (vi) Strengthen processes to accelerate implementation of policies.⁶⁶

From a stakeholder perspective, it is also important to understand,

- (i) The potential effects of biochemical cycles;
- (ii) Ocean acidification;
- (iii) Climate change hotspots;
- (iv) Seabed dwelling populations dynamics;
- (v) Spatial range shifts;

⁶¹ Hughes et al., “Antarctic Environmental Protection.”

⁶² Chown and Brooks, “The State and Future of Antarctic Environments in a Global Context.”

⁶³ V Masson-Delmotte et al., “Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty” (In Press, 2018); H. O. Pörtner et al., “IPCC Special Report on the Ocean and Cryosphere in a Changing Climate” (In Press, 2019), https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf; Masson-Delmotte et al., “IPCC, 2021: Summary for Policymakers.”

⁶⁴ Rintoul et al., “Choosing the Future of Antarctica.”

⁶⁵ Rintoul et al.

⁶⁶ Rintoul et al.; Chown and Brooks, “The State and Future of Antarctic Environments in a Global Context.”

- (vi) Adaptation;
- (vii) Thermal resilience;
- (viii) Sea ice-related biological fluctuations;
- (ix) Pollution;
- (x) Endangered terrestrial endemism; and
- (xi) Unknown habitat information.⁶⁷

Given the increasing focus on the global action to achieve the SDGs,⁶⁸ closer relationships between CCAMLR and other regional fisheries management organizations can improve regulatory activities in the Antarctic and facilitate holistic management of the region in the future.⁶⁹ Furthermore, the compliance with of the conservation principles under CCAMLR requires an international effort to assess the impacts of exploitation not only on target species but on the entire ecosystem, taking into account climate change.⁷⁰ The overlap between UNCLOS and the Antarctic Treaty has raised some questions that remain unanswered, such as those related to maritime claims.⁷¹ Additionally, compounds isolated from Antarctic biota can be used for industrial and medical applications, *e.g.*, omega-3 pills from Antarctic krill.⁷² However, Antarctic bioprospecting has led to much debate,

⁶⁷ Gutt et al., “Antarctic Ecosystems in Transition — Life between Stresses and Opportunities.”

⁶⁸ United Nations, “Sustainable Development Goals of the United Nations.”

⁶⁹ Chown et al., “Antarctica and the Strategic Plan for Biodiversity”; Rintoul et al., “Choosing the Future of Antarctica.”

⁷⁰ Mara R. Wendebourg, “Southern Ocean Fishery Management - Is CCAMLR Addressing the Challenges Posed by a Changing Climate?,” *Marine Policy* 118 (August 2020): 103847; Lynda Goldsworthy and Eaven Brennan, “Climate Change in the Southern Ocean: Is the Commission for the Convention for the Conservation of Antarctic Marine Living Resources Doing Enough?,” *Marine Policy* 130 (August 2021): 104549; Queirós et al., “High Mercury Levels in Antarctic Toothfish *Dissostichus Mawsoni* from the Southwest Pacific Sector of the Southern Ocean.”

⁷¹ Donald Rothwell, *The Polar Regions and the Development of International Law*, Cambridge Studies in International and Comparative Law 3 (Cambridge ; New York: Cambridge University Press, 1996); Bruno Arpi, “Maps Have Meaning: Why Does a Recent Argentine Map Have Potential Implications for Antarctic Governance?,” *Australian Journal of Maritime & Ocean Affairs* 13, No. 2 (April 3, 2021): 79–93.

⁷² ATCM, *Final Report of the Thirty-Seventh Antarctic Treaty Consultative Meeting, Brasília, Brasil, 28 April-7 May 2014, Vol. I*; Rui C.G. Coelho et al., “Extraction and Characterization of Collagen from Antarctic and Sub-Antarctic Squid and Its Potential Application in Hybrid Scaffolds for Tissue Engineering,” *Materials Science and Engineering: C* 78 (September 2017): 787–95; Laura Núñez-Pons et al., “Marine Terpenoids from Polar Latitudes and Their Potential Applications in Biotechnology,” *Marine Drugs* 18, No. 8 (July 29, 2020): 401; Priscila O. de Souza et al., “Bioprospecting of New Antarctic Seaweed Selective Antitumor Molecules: Chemical Characterization and in Vitro Analysis,” *Phytomedicine Plus* 2, No. 2 (May 2022): 100246.

and an internationally agreed legal regime, including under the Convention on Biological Diversity, may be worth further consideration.⁷³ The BBNJ Agreement could provide an opportunity to improve international legal frameworks, such as those governing MPAs.⁷⁴

Portugal will continue to actively participate in activities and initiatives under the Antarctic Treaty by contributing to the ATCM and to the development of Antarctic policies in order to conduct science at the highest level and contribute to environmental protection in an international and multidisciplinary context. In terms of capacity building, education, and outreach, Antarctica and the Southern Ocean will continue to have rather attractive elements, particularly in education, that provide a strong framework for improving quality at all levels and in a variety of disciplines that can help shape future generations of polar explorers.⁷⁵

⁷³ Kevin A. Hughes and P. D. Bridge, "Potential Impacts of Antarctic Bioprospecting and Associated Commercial Activities upon Antarctic Science and Scientists," *Ethics in Science and Environmental Politics* 10, No. 1 (April 23, 2010): 13–18; Drankier Petra, "Marine Protected Areas in Areas beyond National Jurisdiction," *The International Journal of Marine and Coastal Law* 27, No. 2 (2012): 291–350; Roser Puig-Marcó, "Access and Benefit Sharing of Antarctica's Biological Material," *Marine Genomics* 17 (October 2014): 73–78.

⁷⁴ Gardiner, "Marine Protected Areas in the Southern Ocean."

⁷⁵ J. Baeseman et al., "Early Career Researcher Activities During IPY," in *Understanding Earth Polar Challenges: International Polar Year 2007–2008* (University of the Arctic and ICSU/WMO Joint Committee for International Polar Year 2007–2008, 2011), 511–22; J. Provencher et al., "Polar Research Education, Outreach and Communication during the Fourth IPY: How the 2007–2008 International Polar Year Has Contributed to the Future of Education, Outreach and Communication." (Paris: International Council for Science (ICSU)., 2011), https://www.apecs.is/images/Articles/Files/ICSU_IPY_EOC_Report_2011.pdf; Xavier et al., "International Polar Week as an Educational Activity to Boost Science—Educational Links," September 2018; Xavier and Convey, "Antarctic."

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1899

Convention for the Pacific Settlement of International Disputes	Done at The Hague, on July 29, 1899
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1910

Regulations Respecting the Laws and Customs of War on Land annexed to the Fourth Hague Convention of 18 October 1907	January 26, 1910, 205 C.T.S. 277
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1936

Convention regarding the Régime of Straits	July 20, 1936, 173 UNTS 213
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1942

Treaty between Great Britain and Northern Ireland and Venezuela relating to the Submarine Areas of the Gulf of Paria	Signed in Caracas, on February 26, 1942
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1945

Charter of the United Nations	June 26, 1945
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1949

Geneva Convention for the amelioration of the condition of the wounded and sick in armed forces in the field	August 12, 1949, 75 UNTS 970. 31
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Geneva Convention for the amelioration of the condition of the wounded, sick and shipwrecked members of the armed forces at sea	August 12, 1949, 75 UNTS 971. 85
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Geneva Convention relative to the treatment of prisoners of war	August 12, 1949, 75 UNTS 972. 135
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Geneva Convention relative to the Protection of Civilian Persons in Time of War	August 12, 1949, 75 UNTS 973. 287
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Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I)	June 8, 1977, 1125 UNTS 17512. 3
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1958

Convention on the High Seas	April 29, 1958, 450 UNTS 6465. 11
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Convention on Fishing and Conservation of the Living Resources of the High Seas	April 29, 1958, 559 UNTS 8164. 285
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Convention on the Continental Shelf	April 29, 1958, 499 UNTS 7302. 311
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1958 Geneva Convention on the Territorial Sea and the Contiguous Zone	April 29, 1958, 516 UNTS 7477. 205
Optional Protocol of Signature concerning the Compulsory Settlement of Disputes	April 29, 1958, 450 UNTS 6466. 169
Convention on the Recognition and Enforcement of Foreign Arbitral Awards	June 10, 1958, 330 UNTS 4739. 3
<i>1960</i>	
Convention on third party liability in the field of nuclear energy	July 29, 1960, 956 UNTS 13706. 251
<i>1961</i>	
The Antarctic Treaty	June 23, 1961, 402, U.N.T.S 5778. 71
<i>1962</i>	
Convention on the Liability of Operators of Nuclear Ships	May 25, 1962, IUCN (ID: TRE-000585)
<i>1963</i>	
Convention supplementary to the Paris Convention on Third Party Liability in the Field of Nuclear Energy	January 28, 1963, and January 31, 1963, 1041 UNTS 13706. 358
Vienna Convention on civil liability for nuclear damage	May 21, 1963, 1063 UNTS 16197. 265
Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water	August 5, 1963, 480 UNTS 6964. 45
<i>1965</i>	
Convention on the settlement of investment disputes between States and nationals of other States	March 18, 1965, 575 UNTS 8359. 159
<i>1967</i>	
Treaty for the Prohibition of Nuclear Weapons in Latin America	February 14, 1967, 634 UNTS 9068. 281
<i>1969</i>	
Vienna Convention on the Law of Treaties	May 23, 1969, 1155 UNTS 18232. 331
OAU Convention governing the specific aspects of refugee problems in Africa	September 10, 1969, 1001 UNTS 14691. 45
International Convention on Civil Liability for Oil Pollution Damage	November 29, 1969, 973 UNTS 14097. 3

<i>1971</i>	
Treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof	February 11, 1971, 955 UNTS 13678. 115
Convention relating to civil liability in the field of maritime carriage of nuclear material	(with Final Act and official Russian and Spanish translations), December 17, 1971, 974 UNTS 14120. 255
International Convention on the establishment of an international fund for compensation for oil pollution damage	December 18, 1971, 1110 UNTS 17146. 57
<i>1972</i>	
Convention on the international regulations for preventing collisions at sea, 1972	October 20, 1972, 1050 UNTS 15824. 16
Convention on the prevention of marine pollution by dumping of wastes and other matter	(with annexes and procès-verbal of rectification of the Russian originals deposited in London, dated March 13, 1975), December 29, 1972, 1046 UNTS 15749. 120
Convention on the prevention of marine pollution by dumping of wastes and other matter	December 29, 1972, 1046 UNTS 15749. 120
<i>1973</i>	
International Convention for the Prevention of Pollution from Ships	Done at London, on November 2, 1973, in Final Act of the International Conference on Marine Pollution, 1973, <i>in</i> Final Act of the International Conference on Marine Pollution, 1973
<i>1974</i>	
Convention for the prevention of marine pollution from land-based sources	(with annexes), June 4, 1974, 1546 UNTS 26842. 103
International Convention for the Safety of Life at Sea, 1974	November 1, 1974, 1184 UNTS 18961. 2
<i>1976</i>	
Convention for the protection of the Mediterranean Sea against pollution	(with annex and Protocols for the prevention of pollution of the Mediterranean Sea by dumping from ships and aircraft and Protocol concerning co-operation in combating pollution of the Mediterranean Sea by oil and other harmful substances in cases of emergency), February 16, 1976, 1102 U.N.T.S 16908. 27

Treaty of amity and cooperation in Southeast Asia	February 24, 1976, 1025 U.N.T.S. 15063. 297
Protocol to the International Convention on the establishment of an international fund for compensation for oil pollution damage, 1971	November 19, 1976, 1862 U.N.T.S 17146. 509
Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969	November 19, 1976, 1225 UNTS 14097. 356
<i>1977</i>	
Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I)	June 8, 1977, 1125 UNTS 17512. 3
Organization of African Unity Convention for the elimination of mercenarism in Africa	July 3, 1977, 1490 UNTS 25573. 89
<i>1978</i>	
Protocol of 1978 relating to the International Convention for the prevention of pollution from ships, 1973	(with annexes, final act and International Convention of 1973), February 17, 1978, 1340 UNTS 22484. 61
International Convention on standards of training, certification and watchkeeping for seafarers, 1978	July 7, 1978, 1361/1362 UNTS 23001. 2
<i>1979</i>	
International Convention on maritime search and rescue, 1979	(with annex), April 27, 1979, 1405 UNTS 23489. 97
Convention on the conservation of migratory species of wild animals	June 23, 1979, 1651 UNTS 28395. 333
<i>1980</i>	
Convention on the conservation of Antarctic marine living resources	May 20, 1980, 1329 UNTS 22301. 47
<i>1981</i>	
Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region	March 23, 1981, IUCN (ID: TRE-000548)
<i>1982</i>	
United Nations Convention on the Law of the Sea	December 10, 1982, 1833 UNTS 3

<i>1983</i>	
Convention for the protection and development of the marine environment of the wider Caribbean region	March 24, 1983, 1506 U.N.T.S. 25974, 157
<i>1985</i>	
South Pacific Nuclear Free Zone Treaty	August 6, 1985, 1445 UNTS 24592. 177
<i>1986</i>	
United Nations Convention on Conditions for Registration of Ships	February 7, 1986, adopted at Adopted at the one hundred and fifth meeting, November 21, 1986, <i>in</i> Report of the Committee on Shipping on its twelfth session held at the Palais des Nations, Geneva, from November 10 to 21, 1986 [TD/B/C.4/(XII)/Misc.3, January 12, 1987, p. 74].
<i>1988</i>	
Convention for the suppression of unlawful acts against the safety of maritime navigation	March 10, 1988, 1678 UNTS 29004. 201
Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf	March 10, 1988, 1678 UNTS 29004. 201
Joint Protocol relating to the application of the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on Third Party Liability in the Field of Nuclear Energy	September 21, 1988, 1672 UNTS 28907. 293
Agreement between the Portuguese Republic and the Kingdom of Morocco on the Reciprocal Promotion and Protection of Investments	Signed in Rabat, on October 18, 1988, [Decree No. 5/90, of March 1, 1990, Republic Diary No. 5/90, Series 1 of 1990-03-01, pp. 819-824]
<i>1989</i>	
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	March 22, 1989, 1673 UNTS 28911. 57
International Convention on Salvage, 1989	April 28, 1989, 1953 UNTS 33479. 165
<i>1990</i>	
Protocol concerning specially protected areas and wildlife to the Convention for the protection and development of the marine environment of the wider Caribbean region	January 18, 1990, 2180 U.N.T.S. 25974, 101

Cooperation Agreement for the protection of the coasts and waters of the North-East Atlantic against pollution	October 17, 1990, UNTS 56805. 4
Agreement on the Promotion and Protection of Investments between the Portuguese Republic and the Republic of Cape Verde	Signed in Lisbon, on October 26, 1990 [Decree No. 32/91, of April 26, 1991, Republic Diary No. 32/91, Series 1 of 1991-04-26, pp. 2344-2348]
<i>1991</i>	
Convention on Environmental Impact Assessment in a Transboundary Context	February 25, 1991, 1989 UNTS 34028. 309
Agreement between the Portuguese Republic and the Republic of Guinea Bissau on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on June 24, 1991 [Decree No. 41/92, of October 8, 1992, Republic Diary No. 41/92, Series 1 of 1992-10-08, pp. 4694-4698]
Protocol on Environmental Protection to the Antarctic Treaty	October 4, 1991, 2941 UNTS 5778. 9
<i>1992</i>	
Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic	April 9, 1992, LEX-FAOC024298
Convention on Biological Diversity	June 5, 1992, 1760 UNTS 30619. 79
Convention for the protection of the marine environment of the North-East Atlantic	September 22, 1992, 2354 UNTS 42279. 67
Protocol of 1992 to amend the International Convention on the establishment of an international fund for compensation for oil pollution damage	November 27, 1992, 1953 UNTS 17146. 330
Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1969	November 27, 1992, 1956 UNTS 14097. 225
<i>1993</i>	
Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas	November 24, 1993, 2221 UNTS 39486. 91
<i>1994</i>	
Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea	June 16, 1994, LEX-FAOC005117

Agreement on the Mutual Promotion and Protection of Investment between the Government of the Portuguese Republic and the Government of the Republic of Venezuela	Signed in Caracas, on June 17, 1994 [Decree No. 6/95, of April 15, 1995, Republic Diary No. 6/95, Series 1 of 1995-04-15, pp. 2171-2178]
Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of December 10, 1982	July 28, 1994, 1836 UNTS 3
Agreement between the Portuguese Republic and the Republic of Argentina on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on October 6, 1994 [Decree No. 29/95, of August 8, 1995, Republic Diary No. 29/95, Series 1 of 1995-08-08, pp. 4964-4971]
Agreement between the Portuguese Republic and the Republic of Peru on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on November 22, 1994 [Decree No. 23/95, of July 15, 1995, Republic Diary No. 23/95, Series 1 of 1995-07-15, pp. 4524-4531]
The Energy Charter Treaty	December 17, 1994, 2080 UNTS 46224. 95
<i>1995</i>	
Agreement on Trade-Related Aspects of Intellectual Property Rights	Signed in Marrakesh, on April 15, 1994
Agreement between the Portuguese Republic and the Islamic Republic of Pakistan on the Mutual Promotion and Protection of Investments	Signed in Islamabad, on April 17, 1995 [Decree No. 30/96, of October 11, 1995, Republic Diary No. 30/96, Series 1 of 1996-10-11, pp. 3568-3574]
Agreement between the Portuguese Republic and the Republic of Chile on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on April 28, 1995 [Decree No. 64/97, of December 24, 1997, Republic Diary No. 64/97, Series 1 of 1997-12-24, pp. 6772-6778]
Agreement between the Government of the Portuguese Republic and the Government of the Republic of Korea on the Mutual Promotion and Protection of Investments	Signed in Seoul, on May 3, 1995 [Decree No. 14/96, of May 28, 1996, Republic Diary No. 14/96, Series 1 of 1996-05-28, pp. 1295-1302]
International Convention on standards of training, certification and watchkeeping for fishing vessel personnel, 1995	July 7, 1995, UNTS 56216. 130
Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	August 4, 1995, 2167 UNTS 37924. 3

Cooperation Agreement between the Portuguese Republic and the Republic of Mozambique on the Reciprocal Promotion and Protection of Investments	Signed in Maputo, on September 1, 1995 [Decree No. 13/96, of May 28, 1996, Republic Diary No. 13/96, Series 1 of 1996-05-28, pp. 1292-1295]
Convention to ban the importation into Forum island countries of hazardous and radioactive wastes and to control the transboundary movement and management of hazardous wastes within the South Pacific Region (Waigani Convention)	September 16, 1995, 2161 UNTS 48102. 91
Treaty on the Southeast Asia Nuclear Weapon-Free Zone	December 15, 1995, 1981 U.N.T.S 33873. 129
<i>1997</i>	
Agreement between the Portuguese Republic and the Republic of Uruguay on the Mutual Promotion and Protection of Investments	Signed in Montevideo, on July 25, 1997 [Decree No. 65/97, of December 30, 1997, Republic Diary No. 65/97, Series 1 of 1997-12-30, pp. 6844-6850]
Convention on Supplementary Compensation for Nuclear Damage	September 12, 1997, 3038 UNTS 52722. 41
Protocol to amend the Vienna Convention on civil liability for nuclear damage	September 12, 1997, 2241 UNTS 16197. 270
<i>1998</i>	
Agreement between the Portuguese Republic and the Republic of Cuba on the Reciprocal Promotion and Protection of Investments	Signed in Havana, on July 8, 1998 [Decree No. 45/98, of December 4, 1998, Republic Diary No. 45/98, Series 1 of 1998-12-04, pp. 6662-6669]
Agreement between the Portuguese Republic and the Republic of Albania on the Mutual Promotion and Protection of Investments	Signed in Lisbon, on September 11, 1998 [Decree No. 12/99, of May 12, 1999, Republic Diary No. 12/99, Series 1 of 1999-05-12, pp. 2456-2465]
<i>1999</i>	
Agreement between the Portuguese Republic and the Arab Republic of Egypt on the Mutual Promotion and Protection of Investments	Signed in Cairo, on April 21, 1999 [Parliament Resolution No. 75/2000, of November 14, 2000, Republic Diary No. 75/2000, Series 1 of 2000-11-14, pp. 6416-6424]
Agreement between the Portuguese Republic and the United Mexican States on the Reciprocal Promotion and Protection of Investments	Signed in Mexico City, on November 11, 1999 [Decree No. 18/2000, of August 3, 2000, Republic Diary No. 18/2000, Series 1 of 2000-08-03, pp. 3713-3729]

Agreement between the Portuguese Republic and the Republic of Paraguay on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on November 25, 1999 [Decree No. 41/2001, of September 28, 2001, Republic Diary No. 41/2001, Series 1 of 2001-09-28]
Agreement concerning the creation of a marine mammal sanctuary in the Mediterranean	November 25, 1999, 2176 UNTS 38306, 247
<i>2000</i>	
Agreement between the Portuguese Republic and the Special Administrative Region of Macao of the People's Republic of China on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on May 17, 2000 [Parliament Resolution No. 58/2001, of September 18, 2001, Republic Diary No. 58/2001, Series 1 of 2001-09-18, pp. 5914-5920]
Agreement between the Portuguese Republic and the Republic of India on the Mutual Promotion and Protection of Investments	Signed in Lisbon, on June 28, 2000 [Parliament Resolution No. 20/2002, of March 21, 2002, Republic Diary No. 20/2002, Series 1 of 2002-03-21, pp. 2698-2708]
Protocol of 2000 to the International Convention on the establishment of an international fund for compensation for oil pollution damage, 1971	September 27, 2000, UNTS 17146. 8
Agreement between the Portuguese Republic and Ukraine on the Mutual Promotion and Protection of Investments	Signed in Lisbon, on October 25, 2000 [Decree No. 24/2003, of May 17, 2003, Republic Diary No. 24/2003, Series 1 of 2003-05-17, pp. 3104-3114]
<i>2001</i>	
Agreement between the Portuguese Republic and the Republic of Turkey on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on February 19, 2001 [Parliament Resolution No. 22/2002, of April 4, 2002, Republic Diary No. 22/2002, Series 1 of 2002-04-04, pp. 3025-3036]
Agreement between the Portuguese Republic and the Republic of Uzbekistan on the Mutual Promotion and Protection of Investments	Signed in Tashkent, on September 11, 2001 [Decree No. 2/2010, of March 8, 2010, Republic Diary No. 2/2010, Series 1 of 2010-03-08, pp. 662-672]
Agreement on the Conservation of Albatrosses and Petrels	June 19, 2001, 2258 UNTS 50911. 257
Convention on the Protection of the Underwater Cultural Heritage	(with annex), November 2, 2001, 2562 (Part I) UNTS 45694. 3

Agreement between the Portuguese Republic and the Gabonese Republic on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on December 17, 2001 [Decree No. 13/2003, of March 27, 2003, Republic Diary No. 13/2003, Series 1 of 2003-03-27, pp. 2006-2012]
<i>2002</i>	
Agreement between the Portuguese Republic and the Government of the Tunisian Republic on the Reciprocal Promotion and Protection of Investments	Signed in Tunis, on February 28, 2002 [Decree No. 8/2004, of April 29, 2004, Republic Diary No. 8/2004, Series 1 of 2004-04-29, pp. 2657-2666]
Agreement between the Portuguese Republic and Bosnia and Herzegovina on the Mutual Promotion and Protection of Investments	Signed in Sarajevo, on March 13, 2002 [Decree No. 11/2003, of March 25, 2003, Republic Diary No. 11/2003, Series 1 of 2003-03-25, pp. 1918-1930]
Agreement between the Portuguese Republic and the Democratic Republic of Timor-Leste on the Reciprocal Promotion and Protection of Investments	Signed in Dili, on May 20, 2002 [Decree No. 20/2003, of May 3, 2003, Republic Diary No. 20/2003, Series 1 of 2003-05-03, pp. 2881-2885]
Agreement between the Portuguese Republic and the Republic of the Philippines on the Promotion and Protection of Investments	Signed in Manila, on November 8, 2002 [Decree No. 25/2003, of May 20, 2003, Republic Diary No. 25/2003, Series 1 of 2003-05-20, pp. 3131-3139]
<i>2003</i>	
Protocol of 2003 to the International Convention on the establishment of an international fund for compensation for oil pollution damage, 1992	May 16, 2003, UNTS 17146. 31
Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context	May 21, 2003, 2685 U.N.T.S 34028. 140
Agreement between the Portuguese Republic and Great Socialist People's Libyan Arab Jamahiriya on the Mutual Promotion and Protection of Investments	Signed in Sirte, on June 14, 2003 [Decree No. 24/2004, of September 29, 2004, Republic Diary No. 24/2004, Series 1 of 2004-09-29, pp. 6152-6160]
<i>2004</i>	
International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004	February 13, 2004, 3282 UNTS 55544. 92
Agreement between the Portuguese Republic and the Government of the People's Democratic Republic of Algeria on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on September 15, 2004 [Decree No. 14/2005, of July 29, 2005, Republic Diary No. 14/2005, Series 1 of 2005-07-29, pp. 4408-4419]

<i>2005</i>	
Agreement between the Portuguese Republic and the People's Republic of China on the Encouragement and Reciprocal Protection of Investments	Signed in Lisbon, on December 10, 2005 [Decree No. 17/2008, of June 26, 2008, Republic Diary No. 17/2008, Series 1 of 2008-06-26, pp. 3911-3924]
<i>2006</i>	
Southern Indian Ocean Fisheries Agreement	July 7, 2006, 2835 UNTS 49647. 409
<i>2007</i>	
Agreement between the Portuguese Republic and the Government of the State of Kuwait for the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on July 23, 2007 [Decree No. 43/2008, of October 13, 2008, Republic Diary No. 43/2008, Series 1 of 2008-10-13, pp. 7303-7315]
<i>2008</i>	
Agreement between the Portuguese Republic and the Republic of Angola on the Reciprocal Promotion and Protection of Investments	Signed in Luanda, on February 22, 2008 [Decree No. 40/2008, of October 10, 2008, Republic Diary No. 40/2008, Series 1 of 2008-10-10, pp. 7221-7225]
<i>2009</i>	
Agreement between the Government of the Portuguese Republic and the Government of the Hashemite Kingdom of Jordan on the Reciprocal Promotion and Protection of Investments	Signed in Lisbon, on March 17, 2009 [Decree No. 14/2012, of June 25, 2012, Republic Diary No. 14/2012, Series 1 of 2012-06-25, pp. 3187-3197]
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Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean	(with annexes, declaration and procès-verbal of rectification, Wellington, April 1, 2010), November 14, 2009, 2899 UNTS 50553. 211
Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing	(with annexes), November 22, 2009, 3161 UNTS 54133. 1

<i>2011</i>	
Agreement between the Portuguese Republic and the United Arab Emirates on the Reciprocal Promotion and Protection of Investments	Signed in Abu Dhabi, on November 19, 2011 [Decree No. 5/2012, of March 13, 2012, Republic Diary No. 5/2012, Series 1 of 2012-03-13, pp. 1112-1122]
<i>2015</i>	
Paris Agreement	December 12, 2015, 3156 UNTS 54113. 1
<i>2018</i>	
Agreement for the termination of Bilateral Investment Treaties between the Member States of the European Union	SN/4656/2019/INIT, Official Journal (L. 169), May 29, 2020
Agreement between the State of the Netherlands and The Ocean Cleanup concerning the deployment of systems designed to clean up plastic floating in the upper surface layer of the high seas	done at the Hague, on June 8, 2018, available at https://zoek.officielebekendmakingen.nl/stcrt-2018-31907.pdf
Investment Protection Agreement between the European Union and its Member States, of the one part, and the Republic of Singapore, of the other part	Signed in Brussels, on October 19, 2018 [Parliament Resolution No. 199/2021, of July 13, 2021, Republic Diary No. 199/2021, Series 1 of 2021-07-13, pp. 6-72]
<i>2021</i>	
Agreement between the Portuguese Republic and the Republic of Angola to Amend the Agreement on the Reciprocal Promotion and Protection of Investments	Signed in Luanda, on July 16, 2021 [Decree No. 26/2021, of December 20, 2021, Republic Diary No. 26/2021, Series 1 of 2021-12-20, pp. 21-27]
<i>2023</i>	
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GENERAL ASSEMBLY

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Ricardo Serrão Santos is an Ocean scientist and a politician. He holds a PhD in Biology and Animal Ecology. He is a Principal Scientist at the University of the Azores (Ponta Delgada, Portugal). He has been Director of the Department of Oceanography and Fisheries (Horta, Portugal), Pro-Rector of the University of the Azores, and President of Institute of Marine Research (Portugal). Ricardo was elected Member of the European Parliament from 2014 to 2019 and was the Portuguese Minister of the Sea from 2019 to 2022. Ricardo Serrão Santos is dedicated to the study of marine biodiversity and ocean ecosystems. He has published more than four hundred works—papers, books, book chapters—of which more than two hundred scientific papers are included in international systems such as WoK, Scopus, SCI. During his academic career, he has coordinated and chaired several scientific organizations of the European Union, Portugal, and the Azores. He has supervised about thirty PhD students and twenty Postdoctoral fellows. He is a member of several scientific advisory bodies and committees. Ricardo was nominated by IOC-UNESCO as one of twenty individuals who were part of the Executive Planning Group to support the development of the United Nations Decade of Ocean Science for Sustainable Development. He has received several honorable mentions and awards, among which the *Gift to the Earth* by World Wildlife Fund in 2002, the *Insígnia Autônoma de Reconhecimento* awarded by the Legislative Parliament of the Azores and the Azores Government in 2012, and the *Prize Excellence Mare* awarded by PwC Portugal in 2017. In 2021, he was commended *Officier de l'Ordre de Saint Charles* by *Son Altesse Sérénissime* Prince Albert II of Monaco. Ricardo Serrão Santos is an elected Permanent Member of the Portuguese Academy of Sciences and an Emeritus Member of the Portuguese Naval Academy.

PEDRO MADUREIRA

Pedro Madureira is an Assistant Professor in the Department of Geosciences of the University of Évora (Évora, Portugal) and holds a PhD in Geology. Currently, and since 2012, he is seconded as Deputy Head of the EMEPC (Lisbon, Portugal) and is the technical and scientific coordinator of the Addendum to the Proposal for the Extension of the Portuguese Continental Shelf submitted to the United Nations in 2017. From 2012 to 2022, he was a member of the Legal and Technical Commission of the ISA and actively participated in the drafting of the regulations for the exploitation of the mineral resources in the Area—currently being discussed in ISA's Council. During his career, Pedro Madureira has participated as a responsible researcher in several oceanographic campaigns in the North Atlantic. His main academic interests include the exploration and geological evolution of volcanic islands, the formation and distribution of marine mineral resources and the exploration and exploitation of the deep sea.

LUÍSA PINTO RIBEIRO

Luísa Pinto Ribeiro holds a PhD in Igneous Geochemistry and Petrography from the University of Aveiro (Aveiro, Portugal) and has been a geology adviser at the EMEPC working for the Proposal for the Extension of the Portuguese Continental Shelf since 2005 (Lisbon, Portugal). During her career, she has participated in several oceanographic campaigns focused on igneous volcanic seafloor structures. She has also authored several scientific publications, participated in conferences, lectures and outreach activities within the context of the extension of the continental shelf, and taught at several universities, including the University of Lisbon (Lisbon, Portugal). Recently, Luísa was elected as a member of the Legal and Technical Commission of the ISA for the period 2023-2027.

INÊS CRISPIM

Inês Crispim is a lawyer with experience in the areas of responsible business, business, and human rights and ESG. She also has experience in banking and finance and capital markets. Inês is a PhD candidate at NOVA School of Law (Lisbon, Portugal) and an associate researcher at the NOVA Center on Business, Human Rights, and the Environment (Lisbon, Portugal). Inês holds a bachelor's degree in law from the

Faculty of Law of the University of Lisbon (Lisbon, Portugal), a master's degree in Law and Management from the Faculty of Law of Portuguese Catholic University (Lisbon, Portugal), and a postgraduate degree in Banking Law from the Faculty of Law of the University of Lisbon.

HENRIQUE GOUVEIA E MELO

Admiral Gouveia e Melo joined the Naval Academy in September 1979 as a cadet of the *Carvalho Araújo* course. In September 1984, he was promoted to Midshipman at the age of twenty-three. In September 1985, he voluntarily joined the Submarine Squadron, where he sailed on all of its submarines and performed several operational functions aboard. Between 1992 and 2002, he commanded the *NRP Delfim* and *NRP Barracuda* submarines, directed the Training and Assessment Service of the Submarine Squadron and the Staff of the National Submarine Operating Authority. After a three-year stint as Navy press secretary and spokesman, he was Commanding Officer of the frigate *NRP Vasco da Gama* between 2006 and 2008. He also served as Deputy Commander of the *Flotilla*, lighthouse director and Head of the Institute for Lifesaving. Upon his promotion to Rear Admiral, he served as Chief of Cabinet to the Chief of the Naval Staff, Deputy Fleet Commander and substitute Fleet Commander, Fleet Commander, and during that time, Commander of the naval force EUROMARFOR, which includes Portuguese, Spanish, French, and Italian resources. From January 2020 to December 2021, he was Deputy for Planning and Coordination to the Portuguese Chief of Defense at the General Staff of the Armed Forces, a position he combined with that of coordinator of the Task Force for the preparation of the vaccination plan against Covid-19 in Portugal from February to September 2021. On December 27, 2021, he was promoted to Admiral and Chief of Staff of the Navy. Throughout his career, he has been distinguished with several orders and decorations, including the *Grand Cross of The Military Order of Avis*, nine *Distinguished Service Medals*—four gold and five silver; first-, second- and third-class *Military Merit Medals*; *Grand Officer of the Brazilian Order of Naval Merit*; and *Grand Master of the French National Order of Merit*.

ANA COSTA PEREIRA

Ana Costa Pereira holds a bachelor's degree in Law from the Faculty of Law of the University of Porto (Porto, Portugal) and a master's degree in International Law and International Relations from the Faculty of Law of the University of Lisbon (Lisbon, Portugal), after submitting and successfully defending a dissertation entitled "International Responsibility of and for Private Military and Security Companies" (in Portuguese). Since March 1, 2017, she has been a Legal Counsellor in the International Law Department of the Portuguese MFA, where, among other duties, she participated in the Portuguese Presidency of the *Working Group on the use of private military and security companies in maritime security* of the Montreux Document Forum. In 2017, she completed the sixteenth edition of the Course of Advance Studies on Public Management, and in 2018, the Scholarship for Peace and Security of OSCE and the United Nations Office for Disarmament Affairs. In 2019, Ana attended the Summer Course on Public International Law at the Hague Academy of International Law. She is the author of several publications on Public International Law, in Portuguese and English, and member of the Portuguese branch of the International Law Association.

RÚBEN GUEDES DIAS

Rúben Guedes Dias holds a bachelor's degree in Law from the Faculty of Law of the University of Coimbra (Coimbra, Portugal) and is attending his master's degree at NOVA School of Law (Lisbon, Portugal). He holds post-graduate degrees in Company Law and Securities Law from the Faculty of Law of the Portuguese Catholic University (Lisbon, Portugal). He worked as an international tax consultant in the Oil & Gas, Shipping and Technology sectors between 2015 and 2019, when he joined the Portuguese MFA as a diplomat. At the MFA, he has worked as European Union Common Foreign and Security Policy Officer and as a Legal Counsellor. He successfully concluded the Courses on Law of the Treaties and Peaceful Settlement of Maritime Disputes and Delimitation of Maritime Boundaries of the IMO International Maritime Law Institute, and the twenty-second European Diplomatic Program. Rúben is currently serving as Deputy Head of Mission of the Embassy of Portugal to Finland and Estonia.

HELENA TELINO

Helena Telino is a lawyer admitted to practice law in Brazil and Portugal. She holds a PhD in International Law and a master's degree from the Faculty of Law of the University of Lisbon (Lisbon, Portugal). She also holds a bachelor's degree in Biology from the Federal University of Minas Gerais (Belo Horizonte, Brazil). She is currently a legal advisor in the Legal Department of the Portuguese Environment Agency (Lisbon, Portugal). Previously, she was a lawyer at the Superintendence of Environmental Administration of the State of Paraíba (Paraíba, Brazil) and a law professor at Unifacisa University Center (Paraíba, Brazil) and at the ASPER Faculty (Paraíba, Brazil). She was also Technical Director in the Legal Department of Ius Natura - Law and Environment (Belo Horizonte, Brazil), where she was responsible for the implementation and compliance with legal requirements for environmental management systems, occupational health and safety and social responsibility of several companies such as Petrobras, CIMPOR, Samsung, Ambev and Unilever. She has extensive experience in public law, particularly in the areas of constitutional law, human rights, administrative law, and environmental law. Helena has published several articles in these areas. She is also a research member at the Center for Research in Public Law of the Faculty of Law of the University of Lisbon and a visiting professor in postgraduate courses.

GIULIANA FAZIO

Giuliana Fazio is a Brazilian qualified lawyer with a bachelor's degree in Law from Mackenzie Presbyterian University (São Paulo, Brazil) and a master's degree in International and European Law from NOVA School of Law (Lisbon, Portugal). She worked as a Legal Officer at the Portuguese High Commission for Migration (Beja, Portugal), where she was responsible for providing legal advice and assistance to immigrants on labor law, social security law, and access to justice issues as well as conducting legal research and assisting immigrants on family reunification issues. From November 2020 to July 2021, she served as Advisor for Judicial Affairs during the Portuguese Presidency of the Council of the European Union at the Embassy of Portugal in The Hague. There, she was not only the contact person for COJUR-ICC, but also represented the Portuguese Embassy in meetings and working groups of international tribunals based in The Hague. She was also responsible for providing legal input and participating in meetings on international justice issues. Previously, she was a Research Assistant at the NOVA Refugee Legal Clinic of NOVA School

of Law (Lisbon, Portugal). She was also a legal intern in the International Law Department of the Portuguese MFA. From August 2017 to April 2018, she worked as an Associate Lawyer at Braga & Carvalho Law Firm (São Paulo, Brazil), where she provided legal advice to companies in the environmental field.

GONÇALO MOTTA

Gonçalo Motta is a Portuguese diplomat who has served as Counsellor in charge of human rights issues at the Permanent Mission of Portugal to the United Nations and other international organizations, in Geneva since August 24, 2021. He holds a degree in International Relations, political-economic branch, and a postgraduate degree in Diplomatic Theory and Practice, both from Lusíada University (Lisbon, Portugal). He passed the selection process opened on December 15, 2005, to join the Portuguese MFA, which he did in 2007. After his post at the Embassy of Portugal in Brasília on August 10, 2012, he returned to the Portuguese MFA in September 2016 where he served as Head of Unit for Oceans, Environment, Energy, Sustainable Development and Economic, Technical and Scientific Organizations.

MARIA LUÍS MENDES

Maria Luís Mendes studied law at Portuguese Catholic University (Lisboa, Portugal), was admitted to the Portuguese Bar Association and practiced law before entering the civil service, first as a lawyer in the Office of Legal Affairs of the Government of Macao and more recently as an officer of the Portuguese MFA in the Division of Economic Multilateral International Organizations, Unit of Ocean Affairs and the Law of the Sea (Lisboa, Portugal). In this capacity, she represented Portugal as a member of the national delegations to the fourth and fifth sessions of the Intergovernmental Conference on BBNJ Agreement in New York, and to the twenty-sixth and twenty-seventh sessions of the ISA in Kingston, Jamaica. As a volunteer, she has served as president of the Association of Families of Portuguese Diplomats, delegate to EUFASA, chair of the Board of Directors of the American International School of Budapest. She is currently a member of the Board of Governors of St. Julian's International School.

JOSÉ C. XAVIER

José C. Xavier holds a PhD from Cambridge University (Cambridge, United Kingdom) and is currently a professor at the University of Coimbra (Coimbra, Portugal). He is also a research scientist of the Marine and Environmental Sciences Centre (Coimbra, Portugal) and an honorary fellow of the British Antarctic Survey (Cambridge, United Kingdom), where he has focused on Antarctic research, climate change, policymaking and education and outreach since 1997. José is the first head of the Portuguese delegation to the Antarctic Treaty Consultative Meetings, a member of various scientific research programs, advisory and expert groups and co-coordinator of PROPOLAR. José is the youngest scientist to be awarded the prestigious *Marta T. Muse* award for his substantial contribution to Antarctic science and policy.

JOSÉ ABREU

José Abreu is a research scientist at the University of Coimbra (Coimbra, Portugal) at the Marine and Environmental Sciences Centre (Coimbra, Portugal) and at the British Antarctic Survey (Cambridge, United Kingdom). He holds a bachelor's degree in Biology from the University of Aveiro (Aveiro, Portugal) and a master's degree in Ecology from the University of Coimbra (Coimbra, Portugal). His research focuses on commercial fishing—especially longline fishing—its impacts and evolution in recent decades, and the ecological response of target species, and bycatch species, in the Southern Ocean. José has spent three-months aboard a fishing vessel of the Northwest Atlantic Fisheries Organization and three-month mission on a scientific base in South Georgia (Antarctica).

JOANA FRAGÃO

Joana Fragão is a researcher at the University of Coimbra (Coimbra, Portugal) and conducts research at the Marine and Environmental Sciences Centre (Coimbra, Portugal) and the British Antarctic Survey (Cambridge, United Kingdom). She holds a master's degree in Ecology from the University of Coimbra (Coimbra, Portugal). Joana is currently studying the impacts of anthropogenic activities, *e.g.*, microplastic pollution, and climate change on food chains in Antarctica. In addition to her scientific activities, she is involved in education and outreach to spread polar science in schools and universities.

HUGO GUÍMARO

Hugo Guímaro is a research scientist at the University of Coimbra (Coimbra, Portugal) and works at the Marine and Environmental Science Centre (Coimbra, Portugal) and the British Antarctic Survey (Cambridge, United Kingdom). He holds a master's degree in Ecology from the University of Coimbra (Coimbra, Portugal). His research focuses on Antarctic marine animal ecology with particular interest in the ecological interactions between apex predators, *e.g.*, emperor penguins, climate change, and conservation in the Southern Ocean. He uses new technologies such as high-definition satellite imagery analysis, tracking, and modeling. In addition to his scientific work, he is heavily involved in education and outreach efforts in the field of polar research to raise awareness of environmental issues. He is also involved in several national and international polar science projects.

JOSÉ QUEIRÓS

José Queirós is a research scientist at the University of Coimbra (Coimbra, Portugal) and conducts research at the Marine and Environmental Sciences Centre (Coimbra, Portugal) and the British Antarctic Survey (Cambridge, United Kingdom). He holds a master's degree in Ecology from the University of Coimbra (Coimbra, Portugal). His work focuses on the study of deep-sea food webs in the Southern Ocean and how they are affected by global changes, anthropogenic pressures, and contaminants. During his career, José has spent more than nine months aboard fishing vessels in the Ross, Amundsen, Dumont D'Urville, and Scotia Seas, and completed a three-month deployment to the Scientific Base of King Edward Point in South Georgia (Antarctica).

MARTA ESPÍRITO SANTO

Marta Espírito Santo is a science and mathematics teacher in the second cycle of basic education in *Agrupamento de Escolas Professor Ruy Luís Gomes* (Almada, Portugal), where she is also coordinator of the School Science Club, mentor of *Etwinning Projects* and partner in ERASMUS + projects. She has a master's degree in Science Education and is also a teacher at *Instituto Superior de Lisboa e Vale do Tejo* (Lisboa, Portugal). She co-coordinates the Polar Educators Portugal group and develops activities to promote polar science and STEAM in the Portuguese curriculum. She has participated

in national, European, and international science education projects in different contexts, empowering students to make decisions and solve problems related to socio-scientific and socio-environmental issues, working with the integration of ICT in science education.

JOSÉ SECO

José Seco is a research scientist and holds a PhD in Marine Science, Technology and Management of the Sea from the University of Aveiro (Aveiro, Portugal) and the University of St. Andrews (St Andrews, Fife, United Kingdom). Currently, José works at the Marine and Environmental Sciences Centre (Coimbra, Portugal) and is a visiting professor at the Vasco da Gama University School (Coimbra, Portugal). His research focuses on assessing the effects of climate change on Southern Ocean food webs and how these changes may affect the uptake of contaminants in this habitat. José has twenty scientific publications in the field of food web dynamics and contaminants on the Southern Ocean, three expeditions to Antarctica, and more than seventy educational and outreach activities.

PATRÍCIA FIALHO

Patrícia Fialho is a geologist and currently teaches science at the European School of Varese (Varese, Italy). She holds a bachelor's degree in Geology from the University of Coimbra (Coimbra, Portugal) and a master's degree in Education from the University of Lisbon (Lisbon, Portugal). Since 2013, she has coordinated the education project of PROPOLAR and Polar Educators Portugal. She is a founding member and a former president of Polar Educators International. Patricia has developed several polar science education and outreach activities at national and international levels and spent a month-long mission on a science base on King George Island (Antarctica).

