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Edited by Simone Borg, Felicity G. Attard and Patricia Mallia Vella de Fremeaux

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This work is dedicated to our parents.
We are infinitely grateful for their love and support throughout the years.

Contents

<i>List of contributors</i>	ix
<i>Foreword</i>	xiv
David Joseph Attard	
<i>Preface and acknowledgements</i>	xvi
<i>List of abbreviations</i>	xvii

Introduction to the <i>Research Handbook on Ocean Governance Law</i>	1
<i>Simone Borg, Patricia Mallia Vella de Fremeaux and Felicity G. Attard</i>	

PART I THE BLUE SPACE

1	A 50-year reflection on global ocean governance for protection of the marine environment <i>Niliifer Oral</i>	10
2	Maritime zones in international law <i>Danilo García Cáceres</i>	24
3	Airspace, sovereignty and ocean governance <i>Roberto Cassar</i>	47
4	Marine scientific research as a tool for ocean governance <i>Norman A. Martínez Gutiérrez</i>	59
5	Dispute settlement and ocean governance <i>Vladyslav Lanovoy</i>	72

PART II THE BLUE PLANET

6	The International Convention for the Prevention of Pollution from Ships (MARPOL) <i>Malgosia Fitzmaurice</i>	91
7	Land-based sources of marine pollution and dumping at sea <i>Meagan Wong and Niccolò Lanzoni</i>	109
8	Ocean pollution from plastics <i>Jyothi Thomas</i>	128
9	Noise pollution in the marine environment <i>Georgia Veldeki</i>	151

10	Conservation of living marine resources <i>Elda Kazara-Belja</i>	162
PART III THE INTEGRATED APPROACH FOR SUSTAINABLE OCEAN GOVERNANCE		
11	Ocean governance in an era of climate change <i>Simone Borg</i>	179
12	Implementing the ecosystem approach through area-based management <i>Daniela Diz</i>	205
13	The interaction between an Agreement on Biodiversity Beyond National Jurisdiction and the law of the sea <i>David M. Ong</i>	220
PART IV THE BLUE ECONOMY		
14	Towards a more inclusive, systemic and multi-regulatory Blue Economy: the case of offshore wind energy <i>Sandra Cassotta</i>	267
15	Advancing a sustainable Blue Economy – case study: fisheries governance in the Indian Ocean <i>Erika Techera</i>	283
16	The submarine cable systems and landing stations in international law <i>Danilo García Cáceres</i>	295
17	Carriage of goods by sea <i>Richard L. Kilpatrick, Jr.</i>	316
18	The cultural heritage at sea <i>Ángeles Jiménez García-Carriazo</i>	325
PART V THE HUMAN SEA		
19	Piracy and armed robbery <i>Andrew Mallia</i>	337
20	Maritime terrorism and trafficking in weapons of mass destruction <i>John Hursh</i>	348
21	Smuggling of migrants and trafficking in persons by sea <i>Patricia Mallia Vella De Fremeaux and Felicity G. Attard</i>	363
22	Human rights at sea <i>Irini Papanicolopulu</i>	381
	<i>Bibliography</i>	396

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Foreword

*David Joseph Attard*¹

The 1982 United Nations Law of the Sea Convention (UNCLOS), often referred to as a constitution for the oceans, provides a formidable and sound basis for ocean governance regulating human marine activities. The Convention created a new legal order for ocean space which facilitates international communication, promotes the peaceful use of the oceans, enhances the equitable and efficient utilisation of ocean resources (whether living or non-living) and provides for the protection and preservation of the marine environment. These goals contribute to a just and effective ocean governance by taking into account the interests of humankind with particular emphasis on the needs of developing States.

It was difficult, if not impossible, for the drafters of UNCLOS to have envisaged the complex ocean governance challenges which have developed in the past four decades. The astounding technological and economic developments in the exploitation of ocean resources, together with the acute intensification of ocean uses, risk causing irreparable harm to the oceans' ecological wellbeing and have generated multifaceted and convoluted maritime security issues. Complicating these problems is the threat of climate change which is resulting, *inter alia*, in sea-level rise, acidification, deoxygenation and ocean warming. Indeed, climate change not only threatens the environmental health of the oceans but also their productivity upon which humanity depends. Conspicuously, the 1982 UNCLOS contains no direct reference to the problems caused by anthropogenic climate change. It is noteworthy to record that the linkage between climate change and the oceans was not the focus of our deliberations in the drafting of the unanimously adopted 1988 United Nations General Assembly Resolution 43/53 entitled 'Protection of Global Climate for Present and Future Generations of Mankind'. At the time science did not highlight the climate-ocean nexus in the same thorough manner it is doing so today.² When UNCLOS was open for signature and even later when it came into force, the marine plastic pollution crisis and the exploitation of living resources of the deep seabed were not perceived as an urgent cause of concern requiring international regulation. Similarly, beyond the usual threats of piracy and belligerence, certain maritime security issues, like migration and human rights at sea, were not recognised to be as challenging and complex as they are in the twenty-first century.

Whilst UNCLOS remains the cornerstone of the oceans' governance, it is today complemented by a vast amount of legal instruments and prescriptions adopted by various international and regional bodies. Particularly noteworthy are the achievements of the International Maritime Organization (IMO) and the Food and Agriculture Organization (FAO). These organisations, together with others, pre-existed UNCLOS but work within its framework in

¹ Judge UN International Tribunal for the Law of the Sea and Director of the IMO International Maritime Law Institute.

² IPCC, 2019: *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (H-O Pörtner and others (eds), CUP 2019), <https://doi.org/10.1017/9781009157964> is the third in a series of three Special Reports in the current Sixth Assessment Report (AR 6) cycle.

regulating ocean affairs, which fall under their mandate. In the case of the IMO, it has adopted over 50 international maritime treaties and literally hundreds of prescriptions in order to secure cleaner oceans and safer shipping. Indeed, the IMO has today become the world's leading institutional source of international maritime law. Reference can also be made to important legislative developments under the auspices of other organisations. This proliferation has caused serious issues of fragmentation in ocean governance.

It will be recalled that the UNCLOS Preamble proclaims that the problems of ocean space are closely interrelated and need to be considered as a whole. Whilst policy and legislative responses to ocean problems continue to be developed at an increasing rate, there lacks an institutional structure to ensure their coordination and enforcement. In the light of the magnitude of the problems and the limited resources, authority is needed to support the creation of a cross-sectional and integrated policy on global ocean governance which may lead to decisive action by coordinating the intergovernmental and interagency efforts as well as those of all stakeholders.

It is of growing concern that States lack the national expertise to incorporate international rules into their municipal law, as domestic courts are often the only method by which such rules can be enforced. This reality is evident in the experience of the IMO which, with one minor exception, has no strong enforcement powers to ensure the implementation of its prescriptions. The failure of States to incorporate rules vital to proper ocean governance demonstrates the need to promote research and training, particularly in developing countries.

For this reason, this *Research Handbook on Ocean Governance* is a most welcome and an important addition to the literature on the subject. The editors have succeeded in providing a compendium of studies, written by eminent scholars, which cover the more important aspects of ocean governance and will be of valuable assistance in the efforts to enhance capacity building. This *Research Handbook* should be of great interest to the practitioner, diplomat and student.

The risk of failure in providing adequate protection to the oceans is still alarmingly high. Although the remarks, hereunder, by Ambassador Pardo to the First Committee of the United Nations General Assembly were made on 1 November 1967, they are still relevant today:

The dark oceans were the womb of life: from the protecting oceans life emerged. We still bear in our bodies – in our blood, in the salty bitterness of our tears – the marks of this remote past. Retracing the past, man, the present dominator of the emerged earth, is now returning to the ocean depths. His penetration of the deep could mark the beginning of the end for man, and indeed for life as we know it on this earth. It could also be a unique opportunity to lay solid foundations for a peaceful and increasingly prosperous future for all peoples.

Through this *Research Handbook*, the editors and authors have provided a valuable multi-disciplinary tool in humanity's quest to protect the Blue Planet. Indeed, we should be grateful to them for their inspirational endeavours.

Preface and acknowledgements

We are very pleased to launch this publication on the fiftieth anniversary of the United Nations Conference on the Human Environment, held in Stockholm in 1972. This meeting is regarded by many as the pivotal moment when the international community came in touch with the stark reality that the good governance of natural resources is instrumental for international peace and security, that humankind's well-being, or rather its very existence, is intrinsically linked to the good governance of the planet's natural resources.

Also noteworthy is the fact that this publication is being released in the year which marks the fortieth anniversary of the adoption of UNCLOS, the Constitution of the Oceans, as the *Research Handbook* provides a compendium of academic papers that address aspects of ocean governance which are both traditional as well as emerging, dealing with the regulation of ocean space.

It is a great year to commemorate also the thirtieth anniversary of the United Nations Conference on Environment and Development (UNCED), the opening for signature of two of the most influential treaties namely the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention on Biological Diversity (CBD). UNCED provided new methodologies to combat the degradation of natural resources as advocated by the concept of sustainable development which has now been further elaborated upon under the 17 Sustainable Development Goals. Similarly, the UNFCCC and the CBD have been instrumental in highlighting the integrated approach for sound ocean governance, as the health of the ocean is intrinsically linked to the fight against climate change and biodiversity loss.

The link between this publication and all these anniversaries is not only coincidental but also reflects the most salient aspects of the contributions made by the authors to this *Research Handbook*.

We would like to express our gratitude to our families for their patience and support throughout this long-drawn-out task and to our contributors who have worked miracles during these 24 months in the midst of the COVID-19 pandemic.

It is a great privilege that Professor David J Attard, Judge of the United Nations International Tribunal for the Law of the Sea, has accepted our invitation to write the foreword. We wish to record our appreciation for his mentoring throughout our careers and especially for instilling in us a passion for the law on ocean governance.

We wish to thank our academic and administrative colleagues at the Faculty of Laws, University of Malta for their continuous assistance and encouragement.

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Last but not least, to Paul Borg Cutajar for his technical support as we finalised the editing of this *Research Handbook*.

Abbreviations

AALCO	Asian African Legal Consultative Organization
Aarhus Convention	Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters
ABMT	Area-based management tool
ABNJ	Areas Beyond National Jurisdiction
ACCOBAMS	Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area
ADIZs	Air defence identification zones
AIS	Automatic Identification System
APPS	Act to Prevent Pollution from Ships
Art	Article
ASAs	Air services agreements
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
Barcelona Convention	Convention for the Protection of the Mediterranean Sea Against Pollution
BATBEP	Best available technology and best environmental practice
BATs	Best Available Techniques
BBNJ	Biodiversity Beyond National Jurisdiction
BCE	Before the Current Era
BE	Blue Economy
BEPs	Best Environmental Practices
BIMCO	Baltic and International Maritime Council
Black Sea Convention	Convention for the Protection of the Black Sea
Bucharest Convention	Convention on the Protection of the Black Sea against Pollution
CATOC	United Nations Convention against Transnational Organized Crime
CBD	Convention on Biological Diversity
CBT	Clean Ballast Tanks
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CCMLR	Commission of the Convention on the Conservation of Antarctic Marine Living Resources
CEAP	Circular Economy Action Plan

CEP	Caribbean Environment Programme
CFP	Common Fisheries Policy
CHIPS	Clearing House Interbank Payment System
CHM	Common heritage of mankind
CLC Convention	International Convention on Civil Liability for Oil Pollution Damage
CLCS	Commission on the Limits of the Continental Shelf
CMC	Computer-Mediated Communication
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CNRS	French Scientific Research National Centre
CO ₂	Carbon dioxide
COLREGS	Convention on the International Regulations for Preventing Collisions at Sea
COP	Conference of the Parties
COPUOS	Committee on the Peaceful Uses of Outer Space
COW	Crude Oil Washings
CPUCH	Convention on the Protection of the Underwater Cultural Heritage
CSC	Geneva Convention on the Continental Shelf
CSI	Container Security Initiative
CUP	Cambridge University Press
CZ	Contiguous Zone
dB	Decibel
DDT	Dichloro-diphenyl-trichloroethane
DEA	Danish Energy Agency
DWF	Distant Water Fishing Vessels
EAF	Ecosystem approach to fisheries
EBM	Ecosystem based management
EBSA	Ecologically or biologically significant marine area
EC	European Commission
ECA	Emission Control Area
ECHR	Convention for the Protection of Human Rights and Fundamental Freedoms
ECtHR	European Court of Human Rights
EEA	European Environment Agency
EEB	European Environmental Bureau
EEC	European Economic Union
EEZ	Exclusive Economic Zones

EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPR	Extended Producer Responsibility
ERA	Environment and Resources Authority, Malta
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAO's CCRF	Food and Agriculture Organization of the United Nations' Code of Conduct for Responsive Fisheries
FIRs	Flight information regions
Fishing Convention	Convention on Fishing and Conservation of the Living Resources of the High Seas
FMCZ	Fisheries Management Conservation Zone
FSA	Agreement for the Implementation 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
GAFAM	Google, Apple, Facebook, Amazon, and Microsoft
GAM	Gerakan Aceh Merdeka – Free Aceh Movement
GES	Good Environmental Status
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GHG	Greenhouse gas
GoG	Gulf of Guinea
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities
GPML	Global Partnership on Marine Litter
HELCOM	Helsinki Commission
Helsinki Convention	Convention on the Protection of the Marine Environment of the Baltic Sea Area
HGO	Heavy grade oil
HRW	Human Rights Watch
HVDC	High-Voltage Direct Current
IBC Code	International Bulk Chemical Code
ICAO	International Civil Aviation Organization
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICJ	International Court of Justice
ICJ Rep	International Court of Justice Reports

ICLR	<i>International Community Law Review</i>
ICPC	International Cable Protection Committee
ICRW	International Convention for the Regulation of Whaling
IFREMER	French Research Institute for the Exploitation of the Sea
IGC	Intergovernmental Conference
IGRs	Intergovernmental Review Meetings
IHO	International Hydrographic Organization
ILA	International Law Association
ILC	International Law Commission
ILM	<i>International Legal Materials</i>
ILO	International Labour Organization
ILR	International Law Reports
IMCAM	Integrated Marine and Coastal Area Management
IMCO	Inter-Governmental Maritime Consultative Organization
IMGD Code	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
IMP	EU Integrated Maritime Policy
INTERTANKO	International Association of Independent Tanker Owners
IOC	Intergovernmental Oceanographic Commission
IOM	International Organization for Migration
IOPC	International Oil Pollution Compensation
IOPP	International Oil Pollution Prevention
IORA	Indian Ocean Rim Association
IOTC	Indian Ocean Tuna Commission
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
ISA	International Seabed Authority
ISPS Code	International Ship and Port Facility Security Code
ITLOS	International Tribunal for the Law of the Sea
ITU	International Telecommunication Union
IUCN	International Union for Conservation of Nature and Natural Resources
IUU	Illegal, Unreported and Unregulated (Fishing)
IWC	International Whaling Commission
JMT	Joint Management Treaty
LBS	Land-Based Sources
LJIL	<i>Leiden Journal of International Law</i>

LME	Large Marine Ecosystem
LNTS	League of Nations Treaty Series
LRIT	Long-Range Identification and Tracking
MAP	Mediterranean Action Plan
MARPOL	International Convention for the Prevention of Pollution from Ships
MEPC	Marine Environment Protection Committee
MGC	Marine genetic resources
MJIL	<i>Maryland Journal of International Law</i>
MLC 2006	Maritime Labour Convention 2006
MoP	Meeting of the Parties
MPA	Marine Protected Area
MS	Member States
MSC	Maritime Safety Committee
MSF	Médecins Sans Frontières
MSFD	Marine Strategy Framework Directive
MSP	Marine spatial planning
MSPD	Marine Spatial Planning Directive
MSR	Marine Scientific Research
NATO	North Atlantic Treaty Organization
NDCs	Nationally Determined Contributions
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrogen oxides
NSA	National Security Agency of United States
NSAC	North Sea Advisory Council
NSWPH	North Sea Wind Power Hub
NYPE	New York Produce Exchange
NYU	New York University
ODS	Ozone Depleting Substances
OECD	Other effective area-based conservation measure
Offshore Protocol	Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil
OILPOL	International Convention for the Prevention of Pollution of the Sea by Oil
OJ	Official Journal of the European Union

OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic
OUP	Oxford University Press
PAG	Pirate Action Group
Para	Paragraph
PCA	Permanent Court of Arbitration
PCASP	Privately Contracted Armed Security Personnel
PCB	Polychlorinated biphenyl
PCIJ	Permanent Court of Justice
PFR	Piracy for ransom
PIISL	Proceedings of the International Institute of Space Law
PM	Particulate matter
POPs	Persistent organic pollutants
PPE	Personal Protective Equipment
PSC	Port State Control
PSI	Proliferation Security Initiative
PSMA	Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
PSSA	Particularly Sensitive Sea Area
RAC/SPA	Regional Activity Centre for Specially Protected Areas
Refugee Convention	Convention Relating to the Status of Refugees
Rep	Reports
RES	Renewable Energy Directive on the Promotion of the use of Energy from Renewable Sources (2018)
RFMO	Regional Fisheries Management Organization
RIAA	Reports of International Arbitral Awards
Rio + 20 Conference	United Nations Conference on Sustainable Development
RIPE NCC	Réseaux IP Européens - Network Coordination Centre
RSC	Regional Seas Conventions
RSCAPs	Regional Seas Conventions and Action Plans
SARCon	International Convention on Maritime Search and Rescue
SBSTA	UNFCCC Subsidiary Body for Scientific and Technological Advice
SBT	Segregated Ballast Tanks
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment

SECAs	Sulphur Emissions Control Areas
SHOM	Hydrographic and Oceanographic Service of the French Navy
SIAs	Social Impact Assessments
SIP	Statement of Interdiction Principles
SL	Subsidiary Legislation
Smuggling Protocol	Protocol against the Smuggling of Migrants by Land, Sea and Air, Supplementing the United Nations Convention against Transnational Organized Crime
SOFAR	Sound Fixing and Ranging
SOLAS	International Convention for the Safety of Life at Sea
SOx	Sulphur oxide
SPAW	Specially Protected Areas and Wildlife Protocol
SPED	Strategic Plan for Environment and Development
SPREP	Convention for the Protection of the Natural Resources and Environment of the South Pacific Region
SRFC	Sub-Regional Fisheries Commission
SROCC	Special Report on the Oceans and Cryosphere in a Changing Climate
SUA Convention	Convention for the Suppression of Unlawful Acts at Sea
SUP	Single-use plastic
SWA	Armoured cable
SWIFT	Society for World Interbank Financial Telecommunications
TAT	Transatlantic Telephone Cable System
TFG	Transitional Federal Government (Somalia)
TG NOISE	Technical Group on Underwater Noise
TPC	Trans-Pacific Submarine Cable System
Trafficking Protocol	Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children, Supplementing the United Nations Convention against Transnational Organized Crime
UCH	Underwater Cultural Heritage
UDHR	Universal Declaration of Human Rights
UK	United Kingdom
UMLR	<i>University of Miami Law Review</i>
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UNCITRAL	United Nations Commission on International Trade Law
UNCLOS	United Nations Convention on the Law of the Sea

UNCLOS I	First United Nations Conference on the Law of the Sea
UNCLOS III	Third United Nations Conference on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNE	United Nations Environment
UNEA	United Nations Environmental Assembly
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFSA	The United Nations 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
UNGA	United Nations General Assembly
UNGAOR	United Nations General Assembly Official Records
UNHCR	United Nations High Commissioner for Refugees
UNICPOLOS	United Nations' Open Ended Informal Consultative Process on Oceans and the Law of the Sea
UNODC	United Nations Office on Drugs and Crime
UNSC	United Nations Security Council
UNSCR	United States Security Council Resolution
UNTS	United Nations Treaty Series
UNWC	Convention on the Law of the Non-Navigational Uses of International Watercourses
US	United States of America
USD	United States Dollars
VCLT	Vienna Convention on the Law of Treaties
VOC	Volatile Organic Compounds
WCPA	World Commission on Protected Areas (IUCN)
WCR	Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region
WMD	Weapons of mass destruction
WMO	World Meteorological Organization
WWF	World Wildlife Fund
YBIL	Yearbook of International Law