

# Law, Technology and Science for Oceans in Globalisation

IUU Fishing, Oil Pollution, Bioprospecting,  
Outer Continental Shelf

Edited by  
Davor Vidas

The background of the cover is a photograph of a ship on the horizon under a red sky. The ship is a small silhouette in the center of the horizon line. The sky is a solid, vibrant red, and the water is a dark, textured grey.

MARTINUS NIJHOFF PUBLISHERS

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# Law, Technology and Science for Oceans in Globalisation

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## List of Acronyms and Abbreviations

ABLOS	Advisory Board on the Law of the Sea
ABS	access and benefit sharing
AIS	Automatic Identification System
AJIL	American Journal of International Law
APF	Antarctic Polar Front
APFIC	Asia-Pacific Fishery Commission
ARA	Academic Research Agreement
ASPAs	Antarctic Specially Protected Areas
AUD	Australian dollars
BCH Code	(IMO) Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
BTSD	(ICCAT) Bluefin Tuna Statistical Document
CAMLR Convention	Convention on the Conservation of Antarctic Marine Living Resources (1980)
CAS	Condition Assessment Scheme
CBD	Convention on Biological Diversity (1992)
CBD SBSTTA	Convention on Biological Diversity's Subsidiary Body on Scientific, Technical, and Technological Advice
CBT	Clean Ballast Tank
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCBSP	Convention on the Conservation and Management of the Pollock Resources in the Central Bering Sea (1994)
CCSBT	Commission for the Conservation of Southern Bluefin Tuna

CDS	(CCAMLR) Catch Documentation Scheme
CECAF	Fishery Committee for the Eastern Central Atlantic
CEE	comprehensive environmental evaluation
CEPCO	Coordinated Extended Pollution Control Operation
CFAR	Constant False Alarm Rate
CLCS	Commission on the Limits of the Continental Shelf
CM	Conservation Measure (by CCAMLR)
COFI	Committee on Fisheries (of the FAO)
COI	Indian Ocean Commission ( <i>Commission de l'Océan Indien</i> )
COW	crude oil washing
CRA	Commercial Research Agreement
CRAMRA	Convention on the Regulation of Antarctic Mineral Resource Activities (1988)
CTE	Committee on Trade and the Environment (of the WTO)
DOALOS	Division for Ocean Affairs and the Law of the Sea (United Nations Secretariat, Office of Legal Affairs)
dwt	deadweight tons
EBM	ecosystem-based management
ECJ	European Court of Justice
ECOWAS	Economic Community of West African States
ECP	Environmental Compliance Plan
EEZ	exclusive economic zone
EFTA	European Free Trade Association
EIA	environmental impact assessment
EMSA	European Maritime Safety Agency
EPA	(US) Environmental Protection Agency
ESA	European Space Agency
EU	European Union
EUR	Euro

FAO	Food and Agriculture Organisation of the United Nations
FBG	Finnish Border Guard
FBI	Federal Bureau of Investigation
FFA	Forum Fisheries Agency
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 (1995)
FLIR	Forward Looking Infrared Radar
FNI	Fridtjof Nansen Institute
FRP	Fiberglas Reinforced Plastic (vessel)
FSI	Sub-Committee on Flag State Implementation (of IMO)
G77	Group of 77
GATT	General Agreement on Tariffs and Trade (1947)
GEF	Global Environment Facility
GESAMP	Group of Experts on Scientific Aspects of Marine Environmental Protection
GFCM	General Fisheries Commission for the Mediterranean
GIS	geographical information system
GISN	Global Influenza Surveillance Network
GMES	(European) Global Monitoring of Environment Security
GOLD	Genomes Online Database
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
GSSP	Global Stratotype Section and Point
HELCOM	Baltic Marine Environment Protection Commission (Helsinki Commission)
IATTC	Inter-American Tropical Tuna Commission
IBC Code	(IMO) International Bulk Chemical Code
ICCAT	International Commission for the Conservation of Atlantic Tunas



ICES	International Council for the Exploration of the Sea
ICJ	International Court of Justice
ICLQ	International and Comparative Law Quarterly
ICOM	integrated coastal and ocean management
IEE	initial environmental evaluation
IJMCL	The International Journal of Marine and Coastal Law
ILM	International Legal Materials
IMO	International Maritime Organisation
Implementing Agreement for Part XI	Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 (1994)
IOC	Intergovernmental Oceanographic Commission
IOPP Certificate	International Oil Pollution Prevention Certificate
IOTC	Indian Ocean Tuna Commission
IPCC	International Panel on Climate Change
IPHC	International Pacific Halibut Commission
IPOA capacity	International Plan of Action for the Management of Fishing Capacity (2004)
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (2001)
IPR	intellectual property rights
IR/UV	Infrared/Ultraviolet Scanner
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
ITOPF	International Tanker Owners Pollution Federation
IUU	illegal, unreported and unregulated (fishing)
IWGAS	Informal Working Group on Aerial Surveillance
LFS	Laser-Fluorescence Sensors
LNTS	League of Nations Treaty Series
LOS Convention	United Nations Convention on the Law of the Sea (1982)

LOT	load-on-top
LRIT	Long Range Identification and Tracking System
LVFO	Lake Victoria Fisheries Organisation
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships (1973), as modified by the Protocol of 1978
MCS	monitoring, control and surveillance
MEPC	Marine Environment Protection Committee (of the IMO)
MGRs	marine genetic resources
MLS	Multilateral System (of Access and Benefit-sharing)
MOU	Memorandum of Understanding
MRAG	Marine Resources Assessment Group
MSC	Marine Safety Committee (of the IMO)
MWR	Microwave Radiometers
NAFO	Northwest Atlantic Fisheries Organisation
NASCO	North Atlantic Salmon Conservation Organisation
NEAFC	North-East Atlantic Fisheries Commission
NGO	non-governmental organisation
NPAFC	North Pacific Anadromous Fish Commission
NRC	National Research Council (US)
OAU	Organisation of African Unity
ODIL	Ocean Development and International Law
OILPOL	International Convention for the Prevention of Pollution of the Sea by Oil (1954)
OPRC	International Convention on Oil Pollution, Preparedness, Response and Co-operation (1990)
OPRC-HNS Protocol	Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances (2000)
OSG	Overseas Shipholding Group
OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic (1992)

PNG	Papua New Guinea
PSC	Pacific Salmon Commission
PSSA	Particularly Sensitive Sea Area
<i>Recueil des cours</i>	<i>Recueil des Cours de l'Académie de la Haye / The Hague Academy Collected Courses</i>
RFBs	regional fishery bodies
RFMO	regional fisheries management organisation
SADC	Southern African Development Community
SAF	Flag State Self Assessment Form
SAR	Synthetic Aperture Radar
SBTs	segregated ballast tanks
SEAFO	South East Atlantic Fisheries Organisation
SIOFA	South Indian Ocean Fisheries Agreement
SLAR	Side-Looking Airborne Radar
SMHI	Swedish Meteorological and Hydrological Institute
SOLAS	International Convention for the Safety of Life at Sea (1974)
SYKE	Finnish Environment Institute
TRAFFIC	Trade Records Analysis of Flora and Fauna in Commerce
TRIPS Agreement	Agreement on Trade-Related Aspects of Intellectual Property Rights (1994)
UAV	Unmanned Airborne Vehicle
UN	United Nations
UNCED	United Nations Conference on Environment and Development (1992)
UNCLOS I	First United Nations Conference on the Law of the Sea (1958)
UNCLOS III	Third United Nations Conference on the Law of the Sea (1973–1982)
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation

UNGA	United Nations General Assembly
UNICPOLOS	United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea
UNPFII	United Nations Permanent Forum on Indigenous Issues
UNTS	United Nations Treaty Series
USA	United States of America (also US)
USD	US dollars
VDS	Vessel Detection System
VOC	United Dutch East India Company ( <i>Vereenighde Oostindische Compagnie</i> )
WCPFC	Western and Central Pacific Fisheries Commission
WG-FSA	Working Group on Fish Stock Assessment (of the CCAMLR)
WHO	World Health Organisation
WIPO	World Intellectual Property Organisation
VMS	Vessel Monitoring System
WTO	World Trade Organisation
WWF	World Wildlife Fund (now: Worldwide Fund for Nature)

## Notes on Contributors

NEIL ANSELL is assigned to the Directorate General for Maritime Affairs and Fisheries at the European Commission. He has over 12 years of experience working with Monitoring, Control and Surveillance systems. Prior to his post as technical advisor with the EU-funded MCS Programme at the Indian Ocean Commission, he served as a fisheries consultant with the Marine Resources Assessment Group, MRAG, where he undertook advisory roles in various fisheries programmes, including those financed by the EU, the World Bank and the UK government. Ansell has practical experience in MCS and IUU fishing and has also participated in and managed fisheries observer programmes in the NAFO, CCAMLR and IOTC areas and operational surveillance operations in the Indian Ocean and Europe.

DAVID ARDILL served as Executive Secretary of the Indian Ocean Tuna Commission for six years. He retired recently, after having led a programme on Monitoring, Control and Surveillance of tuna fisheries for the Indian Ocean Commission, funded by the European Commission. He has been responsible for the Fisheries Department in Mauritius, his native country; leader of the FAO-executed Project for the Development and Management of Fisheries in the Southwest Indian Ocean; programme leader of the Indo-Pacific Tuna Programme, based in Sri Lanka; and Chief of the FAO Fisheries Department Information, Data and Statistics Service in Rome.

SALVATORE ARICO is a Biodiversity and Environment Specialist at the Natural Sciences Sector of UNESCO in Paris, where he has worked since 2000. His previous positions include unit head at the CBD Secretariat in Montreal, Canada; visiting researcher at the University of Delaware, USA; and expert at the IOC in Paris. He holds a Ph.D. in Marine Environment and Resources from the Stazione Zoologica Anton Dohrn in Naples, Italy (1992). He is a Senior Visiting Research Fellow at the Institute of Advanced Study of the United Nations University in Yokohama, Japan, and visiting professor at the Parthenope University of Naples. Dr. Arico currently also works together with the Energy and Resources Institute in India and is involved in the scoping process of the fifth IPCC assessment report. His main areas of expertise and research include biodiversity science and related policy responses, climate change, and international environmental governance.

FRIDA M. ARMAS-PFIRTER is Professor of Public International Law at the Austral University in Buenos Aires and at the Naval War School of Argentina. She has served as General Coordinator of the Argentine Commission on the Outer Limit of the Continental Shelf since 1997, and has also been member of the Legal and Tech-

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ANDI ARSANA is a lecturer and researcher in the Department of Geodetic Engineering, Gadjah Mada University, Indonesia. He is currently an Australian Leadership Awards Scholar (Ph.D. candidate) at the Australian Centre for Ocean Resource and Security (ANCORS), University of Wollongong. His research focus is on technical/geodetic aspects of the delineation of outer continental shelf limits and the delimitation of maritime boundaries. Andi Arsana has several publications in this field.

HARLAN COHEN serves as advisor on ocean governance and international institutions with the IUCN Global Marine Programme. Previously, Dr. Cohen worked on oceans, Antarctic and Arctic issues at the US Department of State and edited the 9th edition of the Antarctic Treaty Handbook (US Department of State, 2002). He holds a B.A. from Columbia University, a Ph.D. in modern European history from Cambridge University, and has completed a year of graduate study in science, technology and public policy at George Washington University.

DAVID J. DOULMAN is Senior Fishery Liaison Officer in the Fisheries and Aquaculture Department of the UN Food and Agriculture Organisation. He holds a Ph.D. in fisheries economics. His FAO responsibilities include coordination of the 1995 FAO Code of Conduct for Responsible Fisheries; international fisheries reporting; liaison with non-FAO fishery bodies; work on illegal, unreported and unregulated fishing; port state measures; flag state performance; and small-island developing states. Between 1992 and 1995, Dr. Doulman served as the FAO Technical Secretary to the UN Conference on Fish Stocks Agreement. Prior to joining FAO in 1991, he was Deputy Director of the South Pacific Forum Fisheries Agency. He has written widely on South Pacific fisheries issues, the Code of Conduct and IUU fishing.

CARL AUGUST FLEISCHER is Professor of Law at the University of Oslo and adviser in international law to the Norwegian Ministry of Foreign Affairs. He has been involved in work on the Law of the Sea since 1960 and has taken part in numerous international negotiations, including as member of the Norwegian delegation to the Third UN Conference on the Law of the Sea. He has published several books and major reports and articles on matters of international and domestic law, including the textbook *Folkerett (International Law)*, 8th edition (2005), *The New Regime of Maritime Fisheries (Recueil des cours)*, Hague Academy of International Law, (1988), and is the author of the chapters on fisheries ('La Pêche') and fisheries and biological resources in *Traité du nouveau droit de la mer*, and *Manual on the New Law of the Sea* (from 1985 and 1991, respectively, both edited by R.-J. Dupuy and Daniel Vignes).

LYLE GLOWKA is the Legal Advisor to the Convention on Biological Diversity. A biologist and international lawyer, Glowka has provided legal and policy advice on biodiversity-related issues to NGOs, governments and intergovernmental organisations for over 15 years. His 1995 paper and subsequent article titled 'The Deepest of Ironies: Genetic Resources, Marine Scientific Research and the Area' (*Ocean Yearbook*, 1996) provided a conceptual basis for the international community to explore the legal and policy implications of bioprospecting on the seabed beyond the limits of national jurisdiction. Prior to joining the CBD Secretariat in 2007, Glowka was with the Secretariat of the Convention on Migratory Species in Bonn, where he coordinated bio-diplomatic processes for developing and implementing specialised international agreements and action plans for migratory species under the framework of that Convention.

VLADIMIR GOLITSYN is Professor of International Law at Moscow State University of International Relations, and judge at the International Tribunal for the Law of the Sea in Hamburg. He has been active in the field of the law of the sea for over three decades. At the UN, Dr. Golitsyn was involved in the establishment of the International Seabed Authority and the International Tribunal for the Law of the Sea, as well as in navigation and maritime boundary issues. He served as the Director of the Division for Ocean Affairs and the Law of the Sea (DOALOS) of the UN. He is currently Vice President of the Russian Association of International Maritime Law, and was Head of the Division of Public International Law in the Ministry of Foreign Affairs of the former USSR, as well as head or member of delegations at various negotiations on fishery, navigation and maritime boundary matters, the Arctic and Antarctica.

HARM GREIDANUS received his Ph.D. degree in astrophysics from Leiden University, the Netherlands, in 1989, with a thesis on kinematics and multispectral observations of supernova remnants. He worked on remote sensing research at the TNO Physics and Electronics Laboratory in The Hague until 2003, and thereafter at the Joint Research Centre of the European Commission at Ispira, Italy. He has worked mainly with imaging radar (ground-based, airborne and satellite) but also with optical and infrared; for maritime applications (vessel detection, bathymetry, surface waves and currents) as well as for land mapping.

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MICHELE KURUC is a Senior Fishery Industry Officer at the UN Food and Agriculture Organisation. She has spent more than 20 years in natural resources law enforcement work, beginning as a trial attorney in wildlife and marine resources at the United States Department of Justice and then as the chief fisheries prosecutor for the National Oceanic and Atmospheric Administration in the United States. At the FAO, she advises on MCS and VMS and IUU issues. Prior to coming to Rome, she also served as the chair of the International MCS Network from its inception in 2001 until taking up her current position at the FAO in 2006.

DAVID LEARY is a Senior Research Fellow in the Faculty of Law at the University of New South Wales in Sydney, Australia, and Visiting Research Fellow at the United Nations University, Institute of Advanced Studies in Japan. His research interests are in the broad areas of the law of the sea and international environmental law, with current research focusing on off-shore renewable energy, nanotechnology and climate change. He has published widely on issues associated with marine genetic resources and bioprospecting in the deep sea and oceans beyond national jurisdiction, the Arctic and the Antarctic. He is the author of *International Law and the Genetic Resources of the Deep Sea* (Martinus Nijhoff, 2007).

TERJE LOBACH is a Senior Legal Adviser at the Norwegian Directorate of Fisheries. He has extensive experience in bilateral and multilateral negotiations, including drafting of conventions and agreements; and has also carried out consultancy work for several countries and international organisations, as well as assisting developing countries in fisheries negotiations and drafting of legislation. He has been Norway's representative to CCAMLR, FAO, ICCAT, IOC/ABE-LOS, NAFO, NEAFC, SEAFO and the UN. He assisted DOALOS in preparing the UN Secretary-General's



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