

## Index

- Abyssal plains 201. See also marine genetic resources  
 Access and benefit-sharing 14  
 Agreement on Trade Related Aspects of Intellectual Property Rights 213–14  
 Alien and invasive species 5, 27, 37, 88–9  
 Anoxia 3, 70, 88, 97. See also dead zones, hypoxia, oxygen levels  
 Antarctica  
   Antarctic Ocean 3–4, 64, 76. See also high latitude regions  
   Antarctic Treaty 17, 18, 38, 41, 48, 222, 267–8  
 Arctic Council 42  
 Arctic Ocean 3, 5, 24, 27–8, 73–6. See also resilience, high latitude regions  
   biological response to future physical change 118–19  
   scales and domains in Arctic systems 111–16  
 Area-based management 222  
 Areas Beyond National Jurisdiction 8, 10, 11, 14, 15, 32–3, 34, 38, 41, 277  
   legal regime of 199–200  
   and the tragedy of the commons 128  
 Argo Project 10, 56  
   and UNCLOS 191–2  
 Australia 132, 134, 135, 139, 140  
  
 Baltic Sea 68–9  
 Basin-wide oscillations  
   Atlantic Multidecadal Oscillation 62  
   El Niño-Southern Oscillation 62  
   Indian Ocean Dipole 62  
   La Niña 62  
   Pacific Decadal Oscillation 62–3  
 Biodiversity  
   and climate change 4, 88–90. See also primary (ocean) and fish production  
 Biopiracy 224  
 Bioprospecting 23. See also marine genetic resources and marine scientific research 243–4  
  
 Canada 132, 134  
  
 CO<sub>2</sub>  
   concentrations 2, 63–4, 76, 86–7  
   sequestration 24–5, 30  
 Common heritage of mankind 18, 19  
   comparative analysis in space law and the law of the sea 260–5  
 Convention on Biological Diversity 8, 11, 14, 32–3, 198  
 Convention on International Trade in Endangered Species of Wild Fauna and Flora 34  
 Convention on the Conservation of Migratory Species of Wild Animals 34  
 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters 36  
 Convention on the Protection of Underwater Cultural Heritage 13, 35, 238  
 Cook Islands 136  
 Coral systems 25, 93. See also global change (effects of global change on)  
  
 Dead zones 2–3, 68. See also anoxia, hypoxia, oxygen levels  
 Deep sea and seabed 199  
   research in 201. See also marine genetic resources  
 Disaster risk reduction 174  
  
 Ecologically and Biologically Significant Areas 8, 132  
 Ecosystem approach 7–9, 146  
   and biosphere reserves 141–2, 289  
   and the CBD 129–33  
   and CCAMLR 134  
   and the FAO Code of Conduct of Responsible Fisheries 134  
   and IMCAM 132. See also IMCAM  
   and indigenous management systems 135–8  
   and the OSPAR Convention 128  
   and the UN Fish Stock Agreement 128  
   and UNCLOS 128  
   and valuation 147  
   to fisheries 8, 133–5, 139

294

Ecosystem services and benefits 22–5, 146  
 typologies of 148–9, 152–4  
 values of 6, 22–3, 98–9, 146–7, 154–6. See also valuation

Education (on ocean issues) 282–6  
 in relation to the coastal areas and the exclusive economic zones 282–4  
 in relation to areas beyond national jurisdiction 284–5  
 in relation to the whole ocean 285–6

Environmental impact  
 assessments 221–2  
 of bioprospecting 28–9  
 of carbon sequestration 30  
 of fishing 26–7  
 of mining 29  
 of ocean fertilization 30, 36  
 of oil and gas exploration 29  
 of scientific research 15–16, 28  
 of shipping 27–8  
 of underwater cables 28

Exclusive Economic Zones 10

Extremophiles 199, 239–40

Fiji 136

Food and Agriculture Organization of the United Nations 8, 11, 280. See also ecosystem approach

Gaps (in legal and management regimes)  
 conservation 48  
 geographical 42, 47  
 regulatory 37

Geo-engineering 77, 276, 282

Global change (in the ocean), effects of 5, 84–5  
 on coastal marine ecosystems 90–1  
 on coral systems 93  
 on deep-sea basins 95–6  
 on kelp systems 94  
 on mangrove systems 92–3  
 on seagrass systems 92  
 on submarine canyon ecosystems 94–5  
 on virus and prokaryotes 96–7

Global Environment Facility 277

Global ocean conveyor belt 60

Global Ocean Forum 290

Global Partnership for Oceans 290

Global Programme of Action for the Protection of the Marine Environment 277, 281

High latitude regions 3, 73–6. See also Antarctic Ocean, Arctic Ocean

Hydrothermal vents 239. See also marine genetic resources  
 discovery of 200

Hypoxia 3, 68, 69, 70, 75, 88, 97. See also anoxia, dead zones, oxygen levels

Iceland 134

Illegal, unregulated and unreported fishing 280, 281

*Index*

Indian Ocean Sanctuary 33

Indonesia 132

Integrated Global Observing Strategy 190

Integrated Marine and Coastal Area Management 8, 279

Intellectual property rights 16. See also marine genetic resources

Intergovernmental Oceanographic Commission 179

Intergovernmental Platform on Biodiversity and Ecosystem Services 281

International Convention for the Control and Management of Ship's Ballast Waters and Sediments 36

International Convention for the Prevention of Pollution from Ships 35

International Convention for the Regulation of Whaling 33

International Convention for the Safety of Life at Sea 9, 177, 178

International Court of Justice 12

International Maritime Organization 11, 35, 281

International Polar Year 73

International Seabed Authority 12, 241, 244

International Treaty on Plant Genetic Resources for Food and Agriculture and its Standard Material Transfer Agreement 214

International Tribunal for the Law of the Sea 12

International Whaling Commission 33

Japan 136

Kelp systems 94. See also global change (effects of global change on)

Krill 205

Malaysia 132

Maldives 289

Mangrove systems 92–3. See also global change (effects of global change on)

Marine genetic resources 14–17  
 and the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction 219–21, 241–2  
 and access and benefit-sharing 223–5  
 and area-based management 222–3  
 from areas beyond national jurisdiction 202–3  
 and capacity-building 225–6  
 and CBD 208–9, 240–1  
 commercial developments related to 201–3  
 common heritage of mankind principle and 241  
 definition of 198–9  
 environmental impact of marine scientific research on 205–6  
 freedom of the high seas principle 241  
 good practices related to scientific research on 206–7

- and intellectual property rights 212–18  
 legal and policy aspects of 207–21  
 patents on 201  
 scientific research and technology related to 203–5  
 and UNCLOS 208, 209–11, 242–4, 199  
 values of 199
- Marine protected areas 279, 281. See also valuation
- Marine Scientific Research (MSR) in the context of UNCLOS 9, 10, 11, 175–6, 178, 209–10  
 and the collection of meteorological information 176–7
- Marine Spatial Planning 138–9, 284. See also ecosystem approach
- Microorganisms (marine) 15, 96, 198, 204, 210, 214, 239
- Mucilage 97–8
- Nagoya Protocol 14, 224, 243. See also access and benefit-sharing, marine genetic resources and areas beyond national jurisdiction 16
- North Atlantic deep water 56
- North Atlantic Drift 60
- North Atlantic Oscillation 58–9, 66  
 relation with the Gulf Stream and the Labrador Sea 59–60, 62
- Norway 132, 134
- Ocean acidification 2, 6, 64–6, 86–8  
 and the Permian extinction 65
- Ocean Biogeographic Information System 277
- Ocean circulation 2, 58–63  
 and climate 62
- Ocean salinity 2, 56–8
- Ocean warming 1–2, 55–6
- Organic carbon 85, 86, 87
- Oxygen levels 87–8. See also anoxia, dead zones, hypoxia
- Panarchy 110, 119–20
- Particularly Sensitive Sea Areas 35–6
- Patents and patentability 16, 214–16  
 research exemptions related to 216–17
- Philippines 132
- Primary (ocean) and fish production 66–7, 85–6
- Regional Fisheries Management Conventions 42
- Regional Fisheries Management Organizations 8, 11, 41–2, 281
- Regional Seas Conventions 38, 41
- Resilience 110  
 of the Arctic ecosystem 116–17
- ‘Rio + 20’ United Nations Convention on Sustainable Development 281–2
- Satoumi (concept of) 136
- Scientific cooperation 9, 11
- Sea level rise 3, 71–2
- Seagrass systems 25, 91–2. See also global change (effects of global change on)
- Seamounts 26
- Seamounts 201. See also marine genetic resources
- Small Islands Developing States 280, 281
- Solomon Islands 136
- Southern Ocean 76  
 Sanctuary 33
- Space law 17–19  
 and air law 250–2  
 and Antarctica 267–8  
 inception of 249–50  
 and the law of the sea 252–60, 265–7, 270–1  
 sustainability of space activities 269–70
- Species (marine, number of) 198
- Stakeholder 146
- Strategic Plan for Biodiversity 290
- Sundarban 139–40
- Sustainable Development Goals 290
- Sustainable Ocean Initiative 290
- Technology transfer 9, 16, 211–12
- Temperature (of the ocean, changes in) 85. See also ocean warming
- Tipping points (and points of no return) 110
- Treves, Tullio 11–14
- Tsunami  
 and mangrove systems 93  
 warning and mitigation systems 10, 174, 182–90  
 in the Caribbean and adjacent regions 179, 181  
 in the Indian Ocean 181  
 in the North-eastern Atlantic and connected seas 181  
 in the Pacific 182  
 intergovernmental coordination groups (ICGs) 179  
 effectiveness of ICGs 181, 182–4
- UK 140–1  
 Marine Conservation Zones in the 149  
 valuation of marine ecosystem services. See Chapter 7
- UN Fish Stocks Agreement 8, 12, 32, 70, 128, 237
- United Nations  
 Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction 13, 31–2, 200, 207. See also marine genetic resources
- Open-ended Informal Consultative Process on Oceans and the Law of the Sea 13, 31, 178, 200, 207, 211, 219, 242. See also marine genetic resources
- Regular process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects 32, 281
- United Nations Convention on the Law of the Sea 7, 9, 10, 11–14, 31–2, 200, 232, 275, 285–6. See also marine genetic resources

296

United Nations Convention on the Law of the Sea (cont.)  
   gaps in 232  
   gaps in relation to delimitation 233–5  
   gaps in relation to historic bays 235  
   primacy of 13, 276  
   and regulation in another context 233  
   and regulation through integration 233, 237–8  
   and regulation through interpretation 233, 235–6  
 United Nations Educational, Scientific and Cultural Organization 286  
 United Nations Framework Convention on Climate Change 9–10  
 United Nations University 286  
 United States 134  
 UN–Oceans 289

*Index*

Uses, human (main), of ocean areas and resources  
   6–7  
   impacts of 25–30  
 Valuation 6–7, 147  
   commoditization of nature (risk of) 170  
   choice experiments 166  
   limitations of 163–7  
   Payment for Ecosystem Services 169–70  
   willingness to pay 165–6  
 Vulnerable Marine Ecosystems 8, 132  
 World Intellectual Property Organization 213  
 World Meteorological Organization 9, 176, 177  
 World Trade Organization 281. See also intellectual property rights