

Index

- Aboriginal rights: Canada 188–90
 - Aboriginal rights 189
 - Aboriginal title 188–9
 - duty to consult 189–90
- access and benefit sharing (ABS) 4, 63–100, 468–9
 - Antarctic Treaty Area, obligations concerning genetic resources from 90–94
 - accessing genetic resources 91–2, 94
 - Antarctic Treaty System managing biological material 91
 - benefit sharing of genetic resources 92–3, 94
 - intellectual property 90, 93–4
 - patent claims on genetic resources 90
 - sovereignty claims on hold 90
- aquaculture, emergence in 64–72
 - affordable access to improved genetic resources, need for 70–71
 - data, importance of 70
 - distinguishing use for genetic material or for biological product 65, 67–70, 98
 - exchange of genetic resources in aquaculture increasingly important 63
 - focus of ABS on use of biological resources for genetic material 67
 - framework for regulating ABS in national jurisdictions 66–7
 - geographical jurisdictional approach, issues arising from 71–2
 - need for access to aquatic genetic material for new varieties 65–6
 - non-monetary forms of benefit sharing, importance of 71
 - pattern of exchange of aquatic genetic resources 66–7
- CBD
 - access obligations 81–2
 - benefit sharing obligations 83–4
 - general obligations 25
 - nature of genetic material applying to 80
 - obligations consistent with UNCLOS 78
 - scope 77–8
 - sovereign rights of states over resources 77, 78
 - technology transfer obligations 83
 - types of obligations 78
- Nagoya Protocol (2010)
 - access obligations 81–2
 - benefit sharing obligations 83–4
 - derivatives of genetic resources, ABS requirements relating to 79–80
 - governing access and benefit sharing 79
 - specialized ABS instruments, and 84–8
 - technology transfer obligations 83
 - TRIPS, and 80
- national jurisdictions, ABS in areas beyond 86–90
 - knowledge sharing obligations, UNCLOS 89
 - marine scientific research provisions, UNCLOS 88–9
 - provisions on deep sea genetic resources, UNCLOS 87
 - regulatory vacuum, addressing 89–90, 100
 - states obligations, UNCLOS 88, 89

- technology transfer obligations, UNCLOS 87–8
- national jurisdictions, ABS within
 - 77–86
 - CBD 77–86
 - Nagoya Protocol 79–86
 - specialized ABS instruments and multilateral mechanisms 84–6, 99–100
- patented inventions in aquaculture 63–4, 72–7
 - genetic resource inventions, interest in patents over 72
- transjurisdictional ABS approach 94–7
 - human rights law, private interests, and 94–5
 - ICESCR, rights under 95–6
- TRIPS provisions
 - ABS regimes, and 63–4
 - contractual agreements limiting defences 77
 - disclosure obligations on patent holders 77
 - exceptions or defences 76–7
 - exclusive rights 72, 76
 - exclusions from patentability 74, 75
 - international framework for national patent laws 72–3
 - product claims, scope and far-reaching effects of 72–5
 - product of nature doctrine 73–4
 - purpose of protection 76
 - restrictive effects on exchange of genetic resources, lessening 75–6
 - sharing genetic resource inventions, and 76–7
- adaptive management 331, 333–4, 335, 452
- Agenda 21 12
- Antarctic Treaty 91
 - Protocol on Environmental Protection (Madrid Protocol) 91, 92
 - cooperation duties 93
 - permit system for taking native flora/fauna 92
- Antarctic Treaty Area 63
- Antarctic Treaty Consultative Meeting (ATCM) 90–91, 94
- Antarctic Treaty System: obligations concerning genetic resources 64, 90–94
 - accessing genetic resources 91–2, 94
 - benefit sharing of genetic resources 92–3, 94
 - biological material, managing 91
 - commercial and other research 98
 - freedom of scientific investigation, principles of 91
 - intellectual property 90, 93–4
 - Madrid Protocol provisions 92
 - patent claims on genetic resources 90
 - sovereignty claims on hold 90
- aquaculture
 - access and benefit sharing *see* access and benefit sharing (ABS)
 - Asia, importance of production from 2
 - biodiversity and environmental issues 3, 103–4
 - climate change, effects on 3
 - definitions of 6–8
 - ecosystem concerns 103–5
 - EU, and *see* European Union
 - farmed fish and wild fish, concerns about 3, 20, 56, 103–5, 121–7, 338, 467–8
 - farmed fish as proportion of 33
 - genetic diversity, requirement for 65
 - genetically modified organisms, use of *see* genetically modified organisms (GMOs)
 - global importance of 1, 33, 103
 - growth of 2–3, 33, 103–4
 - inland aquaculture operations, importance of 2
 - international law and policy, and *see* international law and policy for aquaculture
 - mariculture *see* mariculture
 - MEAs, and *see* multilateral environmental agreements (MEAs)
 - ocean acidification, threats from 472–3

- CBD report 26
- UN warnings 29
- private ownership of stock 7
- recent total aquaculture production 1–2
- regional approaches to *see* regional approaches to aquaculture
- species key in international trade 34
- top producing countries 2
- trade law, and *see* trade law instruments for aquaculture
- Aquaculture Stewardship Council (ASC) 37
- Asia-Pacific Fishery Commission (APFIC) 109–10
- Australia 4–5, 161–82
 - Atlantic salmon aquaculture in Tasmania: case study 178–81
 - commercial operations, development of 179
 - controversial nature of salmon aquaculture 179, 180
 - environmental conditions, impact of 180–81
 - environmental monitoring and research 179
 - environmental performance/ sustainability, improving 179–80
 - hatchery expertise 178–9
 - Macquarie Harbour Development 181
 - ‘social licence to operate’, need for 180
 - third party assessments 180
- fragmented regulatory and policy framework 161
- future of Australian aquaculture 181–2
- increasing importance of aquaculture 161
- legal and policy framework 166–77
 - CBD, and 169
 - Commonwealth legislation 169–71
 - EPBC Act 169–71, 174–5
 - federalism 166–9
 - judicial adjudication 177
 - key frameworks 175–6
 - local government 174
 - New South Wales 173
 - Offshore Constitutional Settlement (OCS) 168–9
 - policy settings 174–7
 - principles of ecologically sustainable development 169–70
 - public participation in debates 176
 - regulatory framework for aquaculture 170
 - ‘social licence to operate’, concept 161, 176–7, 180
 - South Australia 174
 - state legislation 171–4
 - Tasmania 171–2
 - Western Australia 172
- net importer of fish, as 161–2
- overview of Australian aquaculture 162–6
 - aquaculture operations as major economic activities 163–6
 - ‘culturing’ shellfish 162
 - environmental and planning issues 165–6
 - environmental change, impact of 166
 - finfish aquaculture, development of 162–3
 - siting decisions 177
- Bangkok Declaration and Strategy 24
- benefit-sharing *see* access and benefit-sharing (ABS)
- biodiversity and environmental issues 2, 3, 103–4
- CBD report 26
- fish-based feeds, use of 3
- intensive fish farming operations, effects of 3
- risk management 406–7
- South Africa
 - Biodiversity Act and regulations 406–7
 - invasive species 405, 406, 407
 - permits for restricted activities 406
 - risk assessments 406–7
- UN resolutions: marine biodiversity beyond areas of national jurisdiction 29–30

- Canada 4–5, 182–212
 - constitutional jurisdiction over aquaculture 185–90
 - aboriginal title and rights and duty to consult 188–90
 - cooperative jurisdiction-sharing and impact of *Morton* 186–8
 - enumerated heads of jurisdiction 185–6
 - definition of aquaculture 6
 - economic importance of aquaculture 183
 - federal legislation 190–95
 - Canadian Environmental Assessment Agency 194–5
 - Canadian Food Inspection Agency 192–3
 - Fisheries Act 190–91
 - fisheries and oceans 190–92
 - Health Canada 193
 - Oceans Act 192
 - Pest Management Regulatory Agency 193–4
 - Species at Risk Act 191
 - Transport Canada 194
 - governance/sustainability principles, application of 208–11
 - failure to progress beyond general commitments 210
 - future prospects 210–11
 - lack of coherence of legal regime 209–10
 - sporadic/limited implementation of principles 209
 - sustainability, principles of 207–8
 - growth in aquaculture 183–4
 - land-based and freshwater industry 184–5
 - Nova Scotia, regulatory reform in 202–7
 - escape prevention systems 207
 - foundational elements 203–4
 - goals of regulatory system 203
 - implementation of reforms 207
 - independent panel review 202
 - key regulatory requirements in leases/licences 204–5
 - lease/licence applications, process for 205–6
 - monitoring and enforcement 206–7
 - Panel report 203–7
 - principles guiding design of regulatory framework 203
 - roundtable process 202–3
 - transparency requirements 207
 - provinces with federal-led regulations 195–8
 - British Columbia 195–7
 - Prince Edward Island 197–8
 - provinces with provincially-led regulations 198–202
 - New Brunswick 198–201
 - Newfoundland and Labrador 201
 - Nova Scotia 201–2
 - capture fisheries 1, 67
 - FAO guidelines 24
 - farmed fish as proportion of 33, 361–2
 - regional fisheries management organizations, and 4, 105
 - rule of capture, and 7
 - significant source of employment, as 2–3, 468
- Cartagena Protocol on Biosafety 2000 (BSP) 4, 12, 34
- Philippines, and 377
- scope 34, 58
- transboundary movements (TBMs)
 - advanced informed agreement (AIA) procedure 59
 - risk assessments 59–60
 - state parties' obligations in relation to illegal TBMs 62
 - state parties' obligations in relation to intentional TBMs 58–60
 - state parties' obligations in relation to unintentional TBMs 61
- transgenic species in aquaculture, and 58
- Chile 4–5, 213–37
 - AAA 219
 - ineffective implementation 234
 - not effective in limiting user conflict 218
 - process for establishing 216–17, 228–9

- regional coastal plans, and 228
- sector-specific planning tool, as 234
- aquaculture 213–14
 - factors responsible for growth of 214
 - farmed salmon, principal exporter of 34, 213
 - growth in 213–14, 218
 - important economic driver, as 213
 - main products 214
 - rural development, driver as 213
- consolidation: new legal framework 227–33
 - area management for fish health control 230–31
 - biosecurity performance 231–3
 - enforcement of new
 - environmental and fish health provisions 233
 - environmental protection, legal amendments to 229
 - fish health protection, legal amendments to 229–30
 - industry support services 230
 - marine spatial planning, legal amendments to 228–9
- future challenges and suggested approaches 234–7
 - benefits of stricter regulation 236
 - broader demand for sustainability 236–7
 - fish health regulation remaining a challenge 236
 - international competitiveness of industry, factors affecting 237
- General Fisheries and Aquaculture Act (1991 Act) 214–17
 - disease prevention/control 215–16
 - environmental protection and fish health controls, delay in 216–17
 - farmers' responsibilities 215
 - first comprehensive legal framework 215
 - implementation falling short of effective regulation 216
 - planning regime for aquaculture activities 215
 - pre-Act arrangements 214–15
 - suitable areas for aquaculture (AAA) 216–17
- indigenous communities 228–9
 - consultations, 228, 234
- National Council for Fisheries 217
- regulatory implementation of 1991 Act 218–23
 - biosecurity programs 223
 - environmental impact assessments 220, 221
 - environmental regulations 220–22
 - Fish Health Regulations 222–3, 235
 - legal difficulties in implementing new zoning scheme 219–20
 - marine spatial planning 218–20
 - non-compliance with
 - environmental regulations 220
 - National Policy for the Use of the Coastal Zone 218–19
 - sanitary measures 222–3
- regulatory reform: ISA crisis 223–6, 235–6
 - conditions not ensuring sustainability 224
 - National Policy for Aquaculture, adoption of 223–4
 - outbreak of ISA, consequences of 224
 - outbreak of ISA, measures addressing 224–5
 - regulatory reform following ISA outbreak 225–6, 235–6
 - turning point, as 235
- China 4–5, 238–65
 - development trends and recommendations 263–5
 - mariculture, funding for 264
 - need for improved legislation 264–5
 - sustainable development of aquaculture, importance of 264
 - Water Pollution Prevention Action Plan 264, 265
- food security 238, 241, 263
- judicial case studies and analysis of policy loopholes 257–62

- aquaculture indemnity claims
 - after oil spill 257–8
- competition for sea use/
 - aquaculture contract disputes 258
- contradictions between law and practice 260–61
- lack of long-term aquaculture
 - spatial planning 261–2
- legal loopholes 259
- uncoordinated legislation and governance 260
- management authority for
 - aquaculture 255–6
- main responsibilities of authorities 256
- Ministry of Agriculture, role and responsibilities of 255
- State Council, role and responsibilities of 257
- State Oceanic Administration, role and responsibilities of 255–7
- national aquaculture laws and policy 241–55
 - aquaculture laws and regulations 242–3
 - ‘aquaculture primary’ as umbrella national policy 244
 - Administration of the Use of Sea Areas, Law of 244–5
 - Administrative Regulations on Agriculture GMO Biosafety 249–50
 - Administrative Regulations on Feed and Feed Additives 249
 - Animal Epidemic Prevention, Law of 246
 - Animal Medicine Management Regulations 248–9
 - Detailed Rules on the Implementation of Fisheries Law 248
 - Fisheries Law 243–4
 - hierarchical system of laws 241
 - legal framework 241–2
 - Marine Environment Protection Law 247
 - permit system 244, 245
 - Property Law 246
 - regulatory framework 248
 - rules and other normative documents 250–55
 - water quality standards 247
- overview of aquaculture industry 239–41
 - expansion of aquaculture 240–41
 - exports from, importance of 33–4, 238
 - major aquatic food producer, China as 2, 238, 239
 - volume of products 239–40
- performance of key international
 - legal principles 262–3
 - ecosystem conservation and environmental protection 262
 - promoting sustained and healthy development of marine fishery 262–3
- rules and other normative documents 250–55
 - Administrative Regulations on Aquaculture Product Quality and Safety 254
 - Approval Procedures for Original and Eugenic Variety of Aquatic Species 254–5
 - Fisheries Water Standard 255
 - Measures for the Management of Aquatic Fingerlings 253–4
 - Measures for Water and Tidal Flat Areas Aquaculture Licensing/Registration 252–3
 - Opinion of Ministry of Agriculture on Stabilizing Aquaculture Rights 252
 - Tentative Implementation Plan for IWTAPS 250–52
- CITES 4, 12, 34
 - application 52
 - ‘bred in captivity’, definition of 54
 - aquaculture operations, and 52–6
 - listing fish species 53–4
 - sturgeon, example of 54–6
 - ‘no detriment finding’ 53–4
 - scope of 34
- climate change 6
 - effects of aquaculture on 3, 32, 472–3
 - need for new genetic resources 63

- coastal management 175, 368, 404–5
 - Ramsar Handbook on Coastal Management 27
- Codex Alimentarius Commission
 - food safety 39
- common themes, summary of 462–73
 - climate change and ocean acidification 472–3
 - competition for ocean space/marine spatial planning and zoning 465–7
 - federalism, subsidiarity and national interest 469–70
 - indigenous communities and benefit-sharing 468–9
 - licensing, EISs and ecological limits 464–5
 - private standard setting 472
 - risk management 467–8
 - role of court and other quasi-judicial bodies 6, 471–2
 - scale and scope of ambition 463–4
 - siting decisions and appeals 467
- Convention on Biological Diversity 1992 (CBD) 4, 11–12, 24–6, 64
 - ABS and technology transfer
 - obligations, relationship between 78–9
 - aquaculture, relevance to 24–6
 - CBD decisions 25–6
 - CBD technical reports 26
 - general obligations 25
 - guidelines 25
 - Cartagena Protocol *see* Cartagena Protocol on Biosafety
 - Nagoya Protocol *see* Nagoya Protocol
 - obligations and ABS under CBD
 - access obligations 81–2, 97
 - benefit sharing obligations 83–4
 - consistent with UNCLOS 78
 - general obligations 25
 - genetic resources, applicable to 79–80
 - genetic resources, definition of 98–9
 - nature of genetic material
 - applying to 80
 - technology transfer obligations 83
 - types of obligations 78
 - scope of 77–8
 - sovereign rights over genetic resources 77, 78
 - specialized ABS instruments, and 84–8
 - TRIPS, and 80
- Convention on International Trade in Endangered Species of Wild Fauna and Flora 1973 *see* CITES
- Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) 91, 93
 - harvesting marine living resources 92
 - scope of 92
- Convention on the Conservation of Migratory Species of Wild Animals (1979) (CMS) 11–12, 28
- Convention on Wetlands of International Importance especially as Waterfowl Habitat *see* Ramsar Wetlands Convention
- competing ocean uses/space 6, 109, 156, 258, 305, 329, 338, 396, 425, 465–7
- courts and quasi-judicial bodies, role of 6, 152–3, 167–9, 177, 187–90, 209, 258, 290, 296, 320, 331, 334–5, 353–4, 471–2
- ecological knowledge, traditional *see* indigenous/traditional knowledge
- ecosystem approach
 - application 109, 113, 235, 354, 422, 424–5
 - Guidelines on Ecosystem Approach to Aquaculture 21–2
 - marine planning as tool to deliver ecosystem approach 424–5, 428
 - precautionary and ecosystem approaches, need for 29
- environmental impact assessments (EIAs) 6, 464
 - CBD, under 25
 - Chile 220, 221
 - EU 152–3
 - EIA Directive 335, 356, 422
 - SEA Directive 354–5
 - Water Framework Directive 357

- Iceland 273–5, 286
- Norway 344, 352, 354–6
 - county council's responsibility for impact assessments 357
 - new regulations for impact assessments 356
- UNCLOS, under 14–15
- UK/Scotland 417, 418
 - environmental statements 422
- European Union (EU) 4
 - aquaculture law and policy 130–58
 - definition of aquaculture 6, 133
 - definition of aquaculture products 134
 - environment
 - controlling/preventing disease 147–8
 - environmental impact assessments 152–3
 - environmental legislation, compliance with 147
 - precautionary and ecosystem-based approach 143, 152
 - protection of 150–51
 - research to improve quality of scientific advice 143
 - environmental impact assessments 152–3
 - CJEU decisions 152–3
 - discretion left with Members States 152
 - Environmental Impact Assessment (EIA) Directive 152–3, 335, 356, 422
 - environmental principles, application of 152
 - projects subject to assessment 152
 - Strategic Environmental Assessment (SEA) Directive 152
- EU Commission's STECF Study 134–7
- European Protected Species Licence 423
- food safety and marketing 36, 140, 142, 144–5, 147, 154–5
 - European Food Safety Authority 155
 - 'hazard analysis and critical control points' system 155
 - hygiene regime 155
 - strategic guidelines for sustainable aquaculture 144–5
- food security 158
- future challenges 156–8
 - future reform 157–8
- importance of aquaculture industry 130, 131–2, 135
- legal basis in primary and secondary law 140–42
 - regulation of aquaculture matter for Member States 141
 - shared competence, exercise of 141–2
- licensing of installations/businesses to control/prevent disease 147–8
 - common framework to prevent/control disease 147–8
 - environmental legislation, compliance with 147
 - matter for Member States 147
 - refusal of authorizations 148
- Marine Strategy Framework Directive 424
- maritime spatial planning (MSP) 153–4
 - MSP Directive 133, 154, 157
- multiannual national strategic plans 145–7, 157
 - minimum contents of 146
 - voluntary commitment placed on Member States 145
- national plans
 - multiannual national strategic plans 145–7, 157
 - strategic guidelines for sustainable aquaculture 143–5, 157
- open method of coordination 144, 157
- ownership/private property nature of aquaculture resource 132–3
- patents 75
- policy and regulatory milestones historically 137–40
 - Aquaculture Strategy 138–9
 - financial assistance to develop aquaculture 138, 140, 157
 - more integrated approach to future regulation 139–40

- need for integrated policy 138
 - new organizational structure
 - 139–40
 - reform of CFP 138–9, 156–7
 - protection of environment 150–51
 - ensuring consistency, challenge of 151
 - environmental legislation, extensive body of 150
 - Marine Strategy Framework Directive 150, 151
 - Water Framework Directive 150, 151
 - public participation in MSP process 154
 - spatial plans of Member States, requirement for 154
 - seal products, ban on 50–51
 - stakeholder bodies 148–50
 - advice on EU policy, provision of 149
 - advisory bodies, consultation with 148–9
 - Advisory Council for Aquaculture, role of 148–50
 - principal tasks of Advisory Councils 149
 - strategic guidelines for sustainable aquaculture 143–5, 157
 - food safety requirements 144–5
 - guidance through open method coordination 144
 - objectives of Member States 144
 - prescriptive nature 143
 - purpose 144
 - structure and economic performance
 - of aquaculture industry 134–7
 - EU as major consumer of fish 5, 136
 - scope for future development uncertain 136–7
 - social significance 135–6
 - volume and value 135
 - sustainable aquaculture under CFP,
 - advancing 142–4
 - aims of CFP
 - exchange of best practice information 142
 - precautionary and ecosystem-based approach 143, 152
 - research to improve quality of scientific advice 143
 - strategic guidelines to inform national plans 143–4
- FAO
- aquaculture
 - definition of 6
 - farmed fish 104
 - growth in 103
 - Bangkok Declaration and Strategy 24
 - Code of Conduct for Responsible Fisheries 4, 11
 - aquaculture development strategies and frameworks 16–17
 - conservation of genetic diversity 17
 - precautionary principle 16
 - responsible aquaculture at production level 17
 - transboundary cooperation 16–17
 - food safety standards 40
 - Global Aquaculture Production statistics database 2
 - Philippines, and 382
 - reports and documents relevant to aquaculture 23–4
 - Sub-committee on Fish Trade 40
 - Technical Guidelines for Aquaculture 17–23
 - Guidelines on Aquaculture Development 17–18
 - Guidelines on Ecosystem Approach to Aquaculture 21–2
 - Guidelines on Genetic Resource Management 20–21
 - Guidelines on Good Aquaculture Feed Manufacturing Practice 18–19
 - Guidelines on Health Management for Responsible Movement of Live Aquatic Animals 19–20
 - Guidelines on the Use of Wild Fish as Feed in Aquaculture 22

- Guidelines on the Use of Wild Fishery Resources for Capture-based Aquaculture 23
- Technical Guidelines on Aquaculture Certification 23
- The State of World Fisheries and Aquaculture* 1, 33, 463
- federalism 6, 469–70
 - Australia 166–9
 - Canada 190–95
 - South Africa 393
 - US 440–43
- fish capture/production
 - aquaculture *see* aquaculture
 - capture fisheries *see* capture fisheries
 - transgenic fish *see under* genetically modified organisms (GMOs)
- food safety
 - Codex Alimentarius Commission 39
 - EU 36, 140, 142, 144–5, 147, 154–5
 - European Food Safety Authority 155
 - ‘hazard analysis and critical control points’ system 155
 - hygiene regime 155
 - strategic guidelines for sustainable aquaculture 144–5
- FAO 40
- GATT 49
- GMOs 48–9, 57
 - consultation with trading partners 52
 - public morals exception 51
- Norway 350–51
- SPS 37
 - private food safety standards 40
- trade law instruments 36–7
- US 36
- food security
 - ABS, and 64–5, 72, 82, 84–5, 100
 - aquaculture, role of 64–5
 - China 238, 241, 263
 - expert groups, and 13
 - importance of fish-based protein production 1–2
 - India 290
 - Philippines 362, 363, 381, 385
 - South Africa 411
 - UK 416
- FSA (1995)
 - cooperation through organizations/arrangements 106–7
- GATT 34, 40, 48–52
 - Art XX: chapeau 51–2
 - Art XX: public morals exceptions 49–51
 - balancing trade liberalization with regulatory rights of states 38
 - bans on marketing/sales of fish 38
 - food safety 49
 - GMOs, bans on importing 49
 - justifying deviating measures 49
 - most-favoured-nation treatment 48
 - non-discrimination 48
- General Fisheries Commission for the Mediterranean (GFCM) 110–11
- genetic resources *see under* access and benefit sharing (ABS)
- genetically modified organisms (GMOs)
 - BSP, and 57–62
 - China 249–50
 - food safety/bans 48–9, 57
 - consultation with trading partners 52
 - public morals exception 51
 - nature of 57
 - threats to biological diversity 57
 - risk management strategies 57–8
 - transgenic fish 57, 67, 68, 72
 - TBMs, and 61
 - use of 3
- hatchery operations 7–8, 65, 178–9, 456–7
- Iceland 4–5, 266–88
 - Act on fish farming 275–80
 - distance requirements and resting of areas 280
 - general operating permits 276–7
 - objectives 276
 - official control 280
 - preventive and precautionary measures 278–80
 - Act on pollution control 281–2
 - official control 281–2

- operating permit (pollution prevention) 281
- aquaculture industry, growth of 266
- assessment procedures 272–5
 - environmental impact assessment 273–5, 286
 - strategic environmental assessment 273
- EEA Agreement 267
- main aspects of legal environment 269–87
 - assessment procedures 272–5
 - planning 270–73
 - principal preventive and precautionary measures – permitting 275–87
- overview of aquaculture industry 268–9
 - no comprehensive official policy for industry 269
 - production capacity of farming permits 268
- planning 270–73
 - marine spatial planning 271
 - national strategic planning policy 272–3
 - spatial planning 270–71
- principal preventive and precautionary measures – permitting 275–87
- Act on fish farming 275–80
- Act on pollution control 281–2
- environmental liability 284–6
- importation of living animals 283
- precautionary measures to prevent genetic pollution 266
- protection against fish diseases 282
- public participation and access to justice 286–7
- salmon and trout fishing legislation 283–4
- SEAs 286, 287
- ICESCR 64
 - ABS in aquaculture 96–7
 - adequate food, right to 96
 - benefit sharing rights 95
 - technology and knowledge sharing obligations 96, 98
- India 4–5, 289–312
 - aquaculture historically 289–90
 - food security 290
 - major producer, as 2
 - new mariculture operations, distributional/social justice implications of 7
 - regulating brackish/saline coastal aquaculture 293–305
 - Aquaculture Authority established of 297–8
 - brackish water aquaculture 294
 - Coastal Aquaculture Authority Act 298–302, 306, 311–12
 - Coastal Aquaculture Authority established 300–301, 312
 - commercial promotion and expansion, focus on 297–8, 299
 - development of aquaculture industry 294–5
 - discussion 305–7
 - government’s continuing role 301–2
 - Guidelines for Regulating Coastal Aquaculture 302–5
 - national level regulation 295–6
 - public interest litigation, effects of 296–7
 - regulating freshwater and inland aquaculture 307–11
 - agriculture and aquaculture, tensions between 307–9
 - discussion 310–11
 - freshwater aquaculture, factors restricting growth 310, 311
 - freshwater aquaculture, importance of 307
 - sustainable aquaculture, moving towards 290–311
 - aquaculture regulation operating at two levels 291
 - Constitution of India 291–2
 - environment protection legislation transferred to national government 293
 - fish production, India as leader in 290–91
 - regulating brackish/saline coastal aquaculture 293–307

- regulating freshwater and inland aquaculture 307–11
- indigenous communities 6, 468–9
- ABS
 - accessing genetic resources 81
 - benefits, sharing in 83
 - prior informed consent 81
 - see also* access and benefit-sharing (ABS)
 - Canada 188–90
 - CBD obligations towards 25
 - Chile 228–9, 234
 - knowledge *see* indigenous/traditional knowledge
 - Nagoya Protocol 79
 - New Zealand 319–20, 322–3
 - seal products, EU ban on 50–51
 - indigenous/traditional knowledge
 - accessing on mutually agreed terms 81
 - benefit-sharing with holders of knowledge 83–4
 - Nagoya Protocol 79
 - Philippines 362, 366–7
 - US 448–9
 - intellectual property 4, 66, 76, 83, 94
 - aquaculture/genetic resources, patented inventions in *see* access and benefit-sharing (ABS)
 - TRIPS *see* TRIPS
- International Commission for the Northwest Atlantic Fisheries (NAFO) 106
- International Council for the Exploration of the Sea (ICES) 4, 104, 111–14
 - duties of Council 112
 - integrated multitrophic aquaculture, examining 113–14
 - sustainable aquaculture, developing science and advice for 113
- International Covenant on Civil and political Rights 95
- international law and policy for aquaculture 4, 11–32
- FAO documents 16–24
 - Code of Conduct for Responsible Fisheries 16–17
 - other FAO reports and documents 23–4
 - Technical Guidelines for Aquaculture 17–23
- MEAs 24–8
 - CBD 24–6
 - CMS 28
 - Ramsar Wetlands Convention 26–7
 - UN General Assembly resolutions and processes 29–30
- UNCLOS
 - state responsibilities 14–16
 - state rights 13–14
- International Office of Epizootics animal health 39
- International Plant Protection Convention 39
- International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) 85–6, 99
- Standard Material Transfer Agreements 85
- knowledge, indigenous/traditional *see* indigenous/traditional knowledge
- licensing 6, 7, 147–8, 187, 195–6, 198–201, 204–6, 215, 221, 252–3, 339, 347–8, 369–70, 380, 408, 422–3, 425, 438, 454–5, 464–5
 - typical conditions 464
- mariculture
 - biodiversity, CBD report on
 - avoiding adverse effects on 26
 - finfish, value of 2
 - food fish from 2
 - meaning of 8
 - leases/licences, need for 7
 - MEAs, and *see* multilateral environmental agreements (MEAs)
 - new operations, distributional/social justice implications of 7
 - regional fisheries management organizations, and 4
- marine spatial planning/zoning 6, 26, 31, 111, 463, 465–7

- Australia 175
- Canada 208, 209
- CBD report on benefits of 26
- Chile 215, 218–20, 223, 228–9, 234–5
- China 244, 251, 257, 261–2
- FAO 19, 21, 24
- Iceland 270, 271–2, 278, 286
- India 305, 311
- NASCO 122
- Norway 339, 359
- South Africa 394, 405
- UK/Scotland 430
- US 451
- multilateral environmental agreements (MEAs) 4
 - CBD *see* Convention on Biological Diversity (CBD)
 - MEAs with implications for trade in aquaculture products 52–62
 - Ramsar Wetlands Convention *see* Ramsar Wetlands Convention
 - trade-related *see* Cartagena Protocol on Biosafety; CITES
- Nagoya Protocol (2010) 4, 64
 - access obligations 81–2, 97
 - benefit sharing obligations 83–4, 7
 - derivatives of genetic resources, ABS requirements relating to 79–80, 98–9
 - governing access and benefit sharing 79
 - specialized ABS instruments, and 84–8
 - technology transfer obligations 83
 - TRIPS, and 80
- New Zealand 4–5, 313–35
 - application process 326–30
 - coastal permits for new aquaculture activities 327–8
 - coastal permits, legal status of 328
 - fishing, consideration of adverse effects on 329–30
 - presumption against development of coastal marine areas 326
 - private plan changes for re-designation, applications for 328–9
 - proposals of national significance, calling in 329
 - regional coastal plans designating under six categories 326–7
 - aquaculture as fastest growing sector in agricultural economy 313–14
 - aim to double size of aquaculture sector 315, 463
 - aquaculture regulation, current 323–30
 - application process 326–30
 - principles applying 323–6
 - aquaculture regulation, development of 318–23
 - aquaculture management areas, abolition of 321–2
 - aquaculture management areas, creation of 320–21
 - Aquaculture Reform Act (2004) 320–21
 - coastal permits system 319–20
 - disputes between Māori and Crown/ Māori rights 319–20, 322–3
 - failure of 2004 reforms to enable sustainable growth 321
 - Foreshore and Seabed Act (2004) 320, 323
 - original regulatory scheme unsuccessful 319
 - reforms of 2011, effects of 321–2
 - RMA, introduction of 318–19
 - special status for common marine and coastal areas granted 322
 - start of modern regulation 318
 - case study on salmon farming in Marlborough Sounds 330–34
 - application involving questions of national significance 331
 - EDS* challenge to plan changes 331–3
 - Sustain our Sounds appeal* 333–4
 - ‘clean green image’ of aquaculture 314
 - definition of aquaculture 323
 - human impacts/environmental of aquaculture 314–15
 - Māori disputes with Crown 319–20, 322–3
 - creation of new statutory rights 322–3

- Foreshore and Seabed Act (2004) 320, 323
- Māori Commercial Aquaculture Claims settlement Act 320, 323
- Māori customary title to foreshore and seabed 320, 322–3
- protected customary rights 322–3
- special status for common marine and coastal areas granted 322
- Treaty of Waitangi, marine farming breaching 319
- marine management: regulatory context 317–18
- EEZ 317–18
- unicameral political system 318
- opposition to aquaculture from spatial conflict 316
- Resource Management Act 1991 (RMA)
 - coastal marine area, responsibilities for development in 324
- Coastal Policy Statements 324, 325–6
- introduction of 318–19
- matters of national importance, having regard to 324–5
- precautionary principle, application of 325–6
- principal regulatory instrument, as 324
- purpose 324
- North Atlantic Salmon Conservation Organization (NASCO) 4, 12
 - adopting legally binding obligations for member states 117
 - establishment 116
 - legal basis for jurisdiction over aquaculture 118–19
 - legal status of NASCO's instrument 127–8
- NASCO Convention 116
 - conservation of salmon stocks 117, 118–19
 - institutions, competencies of 116–17
 - parties 116
- precautionary approach 120–21
 - adoption of 105, 120–21
 - implementation of precautionary approach in pre-approval stage 121
 - prevention of escapes and parasite transmission 121–2
- principles on aquaculture management 119–27
 - balancing sustainable conservation and stock with aquaculture benefits 122–3
 - precautionary approach 120–21
 - preventing and minimizing escapes 123–5
 - preventing and minimizing disease and parasite transmission 125–7
 - sustainable development 119–20
 - regional cooperation in aquaculture 115–28
- Williamsburg Resolution 118–19, 121
- North East Atlantic Fisheries Commission (NEAFC) 106
- Norway 2, 4–5, 336–59
 - approval of location under Aquaculture Act 347–54
 - aquaculture licence, nature of 347
 - county councils, responsibilities of 351–4
 - departmental principle, application in Norwegian law of 352
 - environmental impact assessments 352
 - environmentally responsible, meaning of 351–4
 - Food Safety Authority's responsibilities 350–51
 - overlapping competency/integration, principle of 353–4
 - Pollution Control Act and county governor's brief 348–9
 - purpose of the law 347
 - two-staged system for salmon and trout 347–8
- background – growing industry 337–8

- competition for areas increasing 338
- good physical conditions for aquaculture 337
- EU policy and Directives, importance of 336–7
- farmed salmon, principal exporter of 34, 337
- five-fold increase in fish farming envisaged 338, 463
- challenges due to fragmented management 341–57
 - approval of location under Aquaculture Act 347–54
 - increased emphasis on environmental considerations 341–2
 - municipal spatial planning – integrated management 342–7
 - Natural Diversity Act – procedural principles and conservation 342–3
- EIA Directive and Norwegian aquaculture 354–7
 - county council's responsibility for impact assessments 357
- EFTA Surveillance Authority criticisms 355–6
- EIA Directive, requirements of 335, 356
- environmental impact assessments 354–6
- EU Directives applying under EEA Agreement 354
- new regulations for impact assessments 356
- SEA Directive, requirements of 354–5
- Water Framework Directive 357
- future directions 358–9
- legal development and policy framework 336–41
 - background – growing industry 337–8
 - management system – overview and legal development 339–41
- municipal spatial planning – integrated management 342–7
 - government, role of 345–6
 - local authorities, importance of 346–7
 - marine areas, municipal planning for 344–5
 - municipal coastal zone plans 345
 - participation in municipal planning process, importance of 344
 - Planning and Building Act 344–5
 - sector authorities, role of 346
- Norwegian Institute of Marine Research 104
- Norwegian Seafood Federation 103–4
 - overview and legal development of management system 339–41
 - county governors 340, 348–51
 - distribution of competence 340–41
 - executive power in Norway, exercise of 339
 - extensive changes proposed to existing system 341
 - licence system 339–40
 - national government's responsibility for spatial planning 339
- need for environmentally sustainable framework for aquaculture 339
- size of aquaculture industry 338
 - unitary state, Norway as 336
- summary of authorities' roles and balancing conservation/growth 357–8
- ocean acidification 26, 29, 30, 32, 166, 450–51, 473
- Philippines 2, 4–5, 360–85
 - aquaculture historically 360
 - current issues and future directions 382–5
 - aquaculture's low contribution to economy 382
 - environmental degradation 383
 - investment 385
 - natural resource base, depletion of 383–4
 - poverty among coastal fisherfolk 383

- strategic vision and roadmap for industry, developing 384–5
- fisheries sectors 360–61
- food security 362, 363, 381, 385
- importance of aquaculture 361
- aquaculture production 362
- food fish demand 361
- food security 362, 363, 381, 385
- indigenous peoples' rights 362, 366–7
- law and policy framework 362–82
 - Code of Practice 363, 377
 - Fisheries Code 362–7, 371–3, 375, 377–8, 380–81
 - food security 363
 - national and local levels, relationships between 364–7
 - post-harvesting processing 379–82
 - pre-production stage 367–74
 - production 374–82
 - public domain lands, aquaculture carried out on 364–5
 - social justice, promoting 364
 - sustainable development considerations 363–4
- mariculture, development of 361
- post-harvesting processing 379–82
 - facilities 379–80
 - marketing 380–82
 - quality control 380
- pre-production stage 367–74
 - contract stipulations 370–71
 - insurance 373–4
 - licensing 368–70
 - qualification of operators 371–2
 - selection of aquaculture sites 367–9
 - site preparation 372–3
- production 374–82
 - fish health management 378
 - inputs 378–9
 - reporting requirements 379
 - species-specific regulation 375–7
 - stocking 374–5
 - water quality management 378–9
- precaution/precautionary principle
 - Canada 208–9
 - CBD guidelines, under 25
 - EU's sustainable aquaculture policy, and 143, 152
 - FAO, and 19–20, 22
 - guidelines on capture fisheries and species introduction 24
 - management and exploitation of living aquatic resources 16
 - Iceland 278–80
 - NASCO 120–21
 - New Zealand 325–6
 - transboundary movements for GMOs under BSP 60
 - UN General Assembly resolutions and processes 29
- private standard setting 6, 48, 472
 - FAO 23–4, 40
- public participation 16
 - Australia 176
 - Canada 210
 - CBD, under 25
 - EU 154
 - Iceland 286–7
 - Norway 364
 - US 455
- Ramsar Wetlands Convention (1971)
 - 4, 11–12, 26–7
 - aquaculture operations in Ramsar sites 27
 - definition of 'wetlands' 27
 - wise use of wetlands 27
- ranching 8, 69, 98, 163, 367, 433
- regional approaches to aquaculture 103–29
 - Asia-Pacific region 109–10
 - formalization of regional cooperation in marine sector 106–8
 - ICES 111–14
 - Mediterranean 110–11
 - North Atlantic *see* North Atlantic Salmon Conservation Organization (NASCO)
 - North East Atlantic *see* North East Atlantic Fisheries Commission (NEAFC)
 - other regional cooperation bodies 114–15
 - RFBs and RFMOs 4, 106–8, 114–15, 128
 - US 442, 443–8

- Rio Declaration on Environment and Development 12
- risk management 6, 467–8
 - biodiversity 406–7
 - environmental impact *see* environmental impact assessments
 - precautionary principle *see* precaution/precautionary principle
 - scientific justification and risk assessment 40–41
 - SPS Agreement, risk assessment under 40–41
 - strategic environmental assessments (SEAs)
 - CBD, under 25
 - Iceland 286, 287
 - UK/Scotland 417
- science
 - obligations for scientific knowledge sharing 64
 - SPS Agreement, and 41–2
 - scientific justification and risk assessment 40–41
 - sustainable aquaculture, developing science and advice for 113
- Scotland *see* United Kingdom and Scotland
- siting decisions and appeals 6, 463, 467, 470
 - Australia 174, 177, 182
 - FAO 16, 18
 - US 437, 438–9, 445–6
- social equity and licence 21, 31, 161, 176–7, 180, 204, 208, 238, 468, 472
- South Africa 4–5, 386–411
 - aquaculture industry, potential of 387
 - background to marine aquaculture sector and species 388–91
 - aquaculture production, size of 389
 - marine aquaculture activities, nature of 388–9
 - nature of aquaculture businesses 390
 - poverty and deprivation problems 390–91
 - sustainability, importance of 390
- biodiversity
 - alien species 406, 407
 - Biodiversity Act and regulations 406–7
 - invasive species 406, 407
 - permits for restricted activities 406
 - risk assessments 406–7
 - species posing threats to 405
- community-based aquaculture 394–5
 - empowering poorer communities 395
 - pilot projects 395
- constitutional dimension 393–4
 - adoption of democratic constitution 393, 394
 - marine aquaculture as national legislative competence 393–4
 - provincial authority concerning aquaculture 394
 - quasi-federal state, South Africa as 393
- current policy developments 387–8
 - Operation Phakisa 387–8
- environmental assessments 394, 400, 401–4
 - basic assessments 402–3
 - environmental assessment regulations under NEMA 402–3
 - environmental impact reporting procedure 403
 - guidelines 404
 - NEMA, under 401–2
 - requirements for 400
- fishing economy, value of 386–7
- food security 411
- governance, terminology and definitions 395–7
 - development of sustainable marine aquaculture, 2007 policy for 395–6
- Marine Aquaculture Policy Implementation Plan (2009–14) 397
- National Aquaculture Policy Framework for South Africa (2013) 396

- international conventions 391–2
 - CBD, and 392
 - CITES, and 392
 - Ramsar, and 391–2
- legal guide for aquaculture sector on
 - South Africa 397–410
 - Aquaculture Bill (2016) 410
 - authorization process 398–9
 - Biodiversity Act and regulations 406–7
 - biodiversity, species posing threats to 405
 - environmental assessments 394, 400, 401–4
 - Integrated Coastal Management Act (24 of 2008) 404–5
 - marine aquaculture regulations 399–400
 - Marine Living Resources Act (18 of 1998) 398–9
 - National Environmental Management Act 107 of 198 (NEMA) 401–2
 - National Water Act (36 of 1998) 407–8
 - roadmap for owners and investors, as 397
 - species posing treats to biodiversity 405
 - users of 397–8
 - water, use of 408
- relevant legislation, other 408–10
 - Animal Diseases Act 35 of 1984 and Animal Health Act (7 of 2002) 409–10
 - Marketing of Agricultural Products Act (47 of 1996) 410
 - National Health Act (61 of 2003) 409
 - public health and veterinary issues 408
- SPS Agreement 34, 38–44
 - aquaculture, measures relevant to 38–9
 - ‘best practices’ regulatory model, as 39
 - consistency 44
 - example of application of SPS Agreement 43
 - food safety 37
 - private food safety standards 40
 - harmonization 39–40
 - minimize trade restrictiveness and avoid arbitrariness 42–3
 - provisional measures 41–2
 - scientific justification and risk assessment 40–41
 - scope 44
 - strategic environmental assessments (SEAs)
 - CBD, under 25
 - EU 150, 152
 - Iceland 273, 286, 287
 - Norway 344, 354–5
 - South Africa 401
 - UK/Scotland 417
- subsidiarity 6, 469–70
- TBT Agreement 34, 44–8
 - application 44–5
 - balancing trade liberalization with regulatory rights of states 38, 45
 - example of application of TBT Agreement 47
 - harmonization 47–8
 - labelling schemes 38
 - least trade restrictive measures 46–7
 - non-discrimination 45–6
 - scope 44–5
- trade law instruments for aquaculture 4, 33–62
 - intellectual property *see* intellectual property
 - international trade law and aquaculture 34–52
 - anti-dumping measures 35–6
 - environmental sustainability of forms of aquaculture 37
 - food safety standards 36–7
 - GATT 48–52
 - growth in inter-state trade in fisheries 34–5
 - labelling/certification schemes 37–8
 - SPS Agreement 38–44
 - summary/conclusions 52
 - TBT Agreement 44–8
 - MEAs with implications for trade in aquaculture products 52–62

- CITES and aquaculture
 - operations 52–6
 - transgenic species in aquaculture, BSP and 57–62
- traditional knowledge *see* indigenous/traditional knowledge
- TRIPS
 - ABS regimes, and 63–4
 - CBD, and 80
 - disclosure obligations on patent holders 77
 - exceptions or defences 76–7
 - contractual agreements limiting defences 77
 - sharing genetic resource inventions, and 76–7
 - exclusive rights 72, 76
 - exclusions from patentability 74, 75
 - international framework for
 - national patent laws 72–3
 - Nagoya Protocol, and 80
 - patent thickets 74
 - product claims, scope and far-reaching effects of 72–5
 - restrictive effects on exchange of genetic resources, lessening 75–6
 - product of nature doctrine 73–4
 - purpose of protection 76
- UNCLOS 11, 12–16, 64
 - ABS in areas beyond national jurisdiction, and 86–90
 - knowledge sharing obligations 89
 - marine scientific research provisions 88–9
 - provisions on deep sea genetic resources 87
 - states obligations 88, 89
 - technology transfer obligations 87–8
 - coastal states 13, 15
 - EEZ 13, 15, 106, 439
 - regional cooperation 106
 - scope 11, 12
 - state responsibilities 14–16
 - international navigation 15–16
 - marine environmental protection 14–15
 - state rights 13–14
 - aquaculture rights 13–14
 - coastal states 13
 - continental shelf 13
 - exclusive economic zone (EEZ) 13
 - high seas/freedom of high seas 14
 - internal waters 13
 - territorial sea 13
- United Kingdom and Scotland (UK)
 - 4–5, 412–31
 - analysis/conclusion 429–31
 - aquaculture, establishment of 412
 - consent and approval for marine fish farming 418–24
 - alignment of existing fish farms with new system 419–20
 - authorizations of aquaculture production businesses 423
 - containment and parasite control powers 423–4
 - Crown Estate leases required
 - before development 422, 428
 - environmental impact assessments 422
 - European Protected Species Licence 423
 - fish farming, definition of 419
 - local development plans providing policy context 421
 - marine licences 420, 422–3
 - national and local policy guidance
 - for planning decisions 421
 - planning conditions 422
 - permanent nature of planning permissions 422
 - permitted development rights for fish farms 420
 - planning permission for marine aquaculture development 418–20
 - point source discharge
 - authorizations 423
 - policy supports for decision-making at Scotland-wide level 420–21
 - procedure for planning
 - applications for aquaculture development 421–2
 - reform of regulatory regime for marine fish farms 418
 - seal management licences 423

- sustainable development duties, requirement of 422
- environmental impact assessments 417, 418
 - Environmental Impact Assessment Directive 422
 - environmental statements 422
- legal and policy framework for marine aquaculture in Scotland 417–18
 - devolved powers 417
 - marine planning/development of marine protected areas 417
 - development of marine planning in Scotland 425–7
 - finalization of boundaries for marine regions 426–7
 - marine planning as tool to deliver ecosystem approach 424
 - marine planning framework 425–6
 - Marine Policy Statement 425–6
 - marine protected areas 417, 427
 - Marine Strategy Framework Directive 424
 - National Marine Plan 415, 422, 426, 427, 430
 - regional marine plans 427
- marine planning regime and aquaculture 424–7
- migratory fish, protection of 412
- moratorium on aquaculture to protect wild salmon 412–13
- overview of aquaculture industry in Scotland 414–17
 - Atlantic salmon, pre-eminence as producer of 414
 - employment in aquaculture industry, importance of 416–17
 - farmed shellfish 415
 - food security policy, fish farming having role in 416
 - growth sector, aquaculture as 415–16
 - increasing importance of aquaculture 415
 - National Marine plan, aquaculture in 415, 426
 - potential of other finfish species 414
 - sustainable production, requirement of 416
 - value of Scottish aquaculture industry 414, 415
- strategic environmental assessments 417
- uncertainty, areas of 428–9
 - balance of social and economic developments 429
 - challenging targets for industry growth, conservation and 428
 - Crown Estate, future ownership and operation of 428–9
 - moratorium on aquaculture, lifting 428
 - permanent planning permissions, appropriateness of 428
 - wild salmon, protecting 428
- United Nations (UN)
 - General Assembly resolutions and processes
 - aquaculture, relevance to 29–30
 - marine biodiversity beyond areas of national jurisdiction 29–30
 - precautionary and ecosystem approaches, need for 29
 - sustainable aquaculture, achieving 29
 - sustainable development, 2030 Agenda for 30
 - UN Convention on the Law of the Sea (UNCLOS) *see* UNCLOS
 - UN Fish Stocks Agreement *see* FSA (1995)
 - UN Food and Agriculture Organization *see* FAO
 - UN International Covenant on Civil and Political Rights 95
 - UN International Covenant on Economic, Social and Cultural Rights *see* ICESCR
- United States (US) 4–5, 432–61
 - anti-dumping measures 35–6
 - aquaculture, definition of 6, 433
 - background to aquaculture in US 433–5
 - development of national aquaculture policies 435

- National Aquaculture Act 433–4
- National Ocean Policy established 434–5
 - national policy to promote domestic aquaculture 433
- National Shellfish Initiative 435
- expansion of aquaculture 433
- federal authorities 440–43
 - Environmental Protection Agency 440–41
 - National Oceanic and Atmospheric Administration 441–2
 - US Army Corps of Engineers 442–3
- food safety standards 36
- future of aquaculture 460–61
- Gulf of Mexico Regional Fishery Management Plan 443–8
 - aquaculture systems, evaluating 446
 - enforcement 446
 - facility siting requirements 445–6
 - fishery management plan for aquaculture 444–5
 - permit system 445, 446–7
 - recordkeeping and reporting requirements 447
 - sustainable yields, ensuring 443–4
- major consumer of fish, US as 5, 432
- regional and state regulatory regimes, significant 443–60
 - Gulf of Mexico Regional Fishery Management Plan 443–8
 - State of Alaska 455–7
 - State of Connecticut 457–9
 - State of Maine 454–5
 - State of Massachusetts 451–4
 - State of Washington 448–51
- regulatory framework 437–60
 - federal authorities 440–43
 - fragmented nature of 437–8
 - individual states, role of 438–9
 - patchwork of agency decision-making authority 439–40
 - regional fishery management councils 441–2, 443
 - significant regional and state regulatory regimes 443–60
- seafood trade deficit 432, 434
- significant offshore aquaculture projects 457–60
 - commercial-scale finfish farm 458–9
 - kampachi production 457–8
 - shellfish aquaculture 459
- State of Alaska 455–7
 - hatchery program 456–7
 - permit and leases 456
 - robust aquaculture program 455–6
- State of Connecticut 457
 - insurance for aquaculture 457
- State of Maine 454–5
 - ecosystem-based management 455
 - escape prevention plans 455
 - development of commercial aquaculture farms 454
 - licence-system 454–5
 - research organizations, grant to 454
 - well-regarded management/regulatory program 454
- State of Massachusetts 451–4
 - importance of aquaculture 453
 - mapping sensitive habitats/water-dependent uses 453–4
 - Ocean Management Plan 451–2, 453
 - permitted aquaculture operations 453
 - planning goals 452–3
- State of Washington 448–51
 - farmed shellfish industry, importance of 448
 - model permitting program 448–9
 - Native American rights 448–9
 - negative impact of warm/acidic water on fisheries 450–51
 - restoration pilot projects 449
 - Washington Shellfish Initiative 448–50
- status of aquaculture in US 435–7
 - land-based freshwater production 435–6
- Universal Declaration of Human Rights 95

- World Intellectual Property Organization
Intergovernmental Committee on Intellectual Property and Genetic Resources 82
- World Trade Organization (WTO) 34
General Agreement on Trade and Tariffs *see* GATT
- Agreement on the Application of Sanitary and Phytosanitary Measures *see* SPS Agreement
- Agreement on Technical Barriers to Trade *see* TBT Agreement
- Agreement on Trade-Related Aspects of Intellectual Property Rights *see* TRIPS Measures (SPS Agreement)