Index

acclimation, 240
ACI (Atmospheric Circulation Index), 87
acoustics, 12
agricultural run-off, 253
alarmist papers
failures of peer-review, 158
state of stocks, 157
Alaska
demersal fisheries, 301
ecosystem-based management
goals, 304
Aleutian Low Pressure Index, 87
Alverson, report on northern cod
stocks, 145
American plaice, stock dynamics in
NW Atlantic, 149
Asia-Pacific Fishery Commission (APFC),
stock status reports, 182
Atlantic Dawn, 215
Baltic, anoxic deep water, 44
banquet-quality fish in antiquity, 126
Barents Sea ecosystem changes due to
fishing, 148
Barndoor skate, its ‘extinction’ and
recovery, 231
Benguela
ecosystem evolution, 249
Benguela Current
modelling regime shifts, 95
benthos
community structure and
substrate, 65
destruction by trawling gear, 255
bestowal reproductive strategy, 42
Billingsgate Fish Market, 214
biology
lacking predictive theory, 1
subservience to maths, 6
Brunt–Vaissala frequency, 66
Cabot, John, 131
CalCOFI, 72
California Current
comparative ecology sardine/
anchovy, 99
cyclical collapses of sardine
stocks, 97
Canadian Oceans Act of 1997, 269
cannibalism
and biomass size spectrum, 26
filial cannibalism, 26
in cephalopods, 29
in cichlids, 26
in cod, 25
in gadoids, 27
in nest-guarders, 29
in teleosts, 26
in tropical tuna, 30
Nellen’s hypothesis, 24
of ova, 30
Chapman, W. M., US Under-Secretary
of State for Fisheries, 4
China, catch statistics, 163
chlorophyll profiles, relative lack, 71
chronological age, 38
climatic change and future states, 80
cod
age and reproductive success, 44
Baltic cod, scale reading
problems, 201
changes in Labrador Current
flow, 148
collapse of stocks in the 1990s, 142
collapses of capelin stocks, 148
historical evolution of NW
Atlantic fishery, 130
political pressures to maintain
fishing, 147
pressure on DFO scientists
to support ministerial
position, 147
cod (cont.)
progressive decline in age at maturity, 242
progressive reduction in weight-for-age, 243
spawning aggregations, 236
the Icelandic 'Cod Wars' with the UK, 147
truncation of natural age structure, 242
Commission for the Conservation of Southern Bluefin Tuna (CCSBT), 175
Conventions and Agreements, levels of compliance, 210
coral reefs
erly fishing down food web, 120
live food fish trade, 216
significance of herbivorous fish on tropical reefs, 285
Crosbie, John, 146
Cushing's 'match–mismatch' hypothesis, 108
Cyanide fishing, 217
data collection at sea, limited by costs, 200
decision analysis procedures, 204
deep coral reef habitat, 254
deep-water fisheries for K-selected species, 189
density-dependent habitat selection, 168
density-dependent population regulation, 2
depensation, or the Allee effect, 234
design constraint barriers in ecology, 49
DFO, Canadian Department of Fisheries and Oceans, 10
diel vertical migration of fish, 66
EBFM, ecosystem-based fishery management, 265
ecological niche-structure in sea and on land, 64
ecologically sustainable development, 270
ECOPATH with Ecosim, 73
egg size in teleosts, 41
English law and fishing rights, 128
ENSO (El Niño/Southern Oscillation) events, 84
Estai affair of 1995, 146
EU
Commissioner for Maritime Affairs and Fisheries, 206
Common Fisheries Policy (CFP), 206
Directorate-General for Fisheries, 206
Fisheries Ecosystem Plan, 269
Standing Committee on Fisheries, 206
European coastal habitat, early degradation, 127
European Overfishing Convention, 1946, 7
evolution of fishing techniques, 125
Exclusive Economic Zone establishment, 5
FAO
Code of Conduct for Responsible Fisheries, 263
levels of precision in landing statistics, 162
serial reports on global stock status, 176
fecundity
and evolutionary laws, 20
and reproductive success, 18
anomalous in teleosts, 16
difficulty in quantifying, 18
evolution of stock fecundity with age, 45
Hjort's conclusions, 17
relative to body mass, 42
teleosts, early theories, 17
fertility, changes during growth, 38
fish schools as predator defence mechanism, 237
FishBase archives, 46
fisheries collapse, dynamic patterns, 197
fisheries oceanography, 266
Fisheries Rights in Japan, 210
fishery observers at sea, 304
floristics, ocean and land, 61
fluctuations of fish populations, natural causality, 98
genetic changes induced by fishing, 244
genetic variation within fish species, 246
geophysical indices and cyclical weather patterns, 101
Ghana, catch statistics, 164
global climate variability and fish stocks, 81
global stock status, doubtful assessment methods, 183
globalisation of fisheries expansion of tropical tuna fishery, 150
factory trawlers in Gulf of Guinea, 139
Index 317

International Plan of Action of the FAO, 212
IPHC, International Pacific Halibut Commission, 303
IUU fishing by-catch problem, 173
cheating by fishermen at sea, 218
defined, 169
deterrence of sanctions, 220
discard problem, 169
in Gulf of Guinea, 139
mesh regulation evasion, 224

JGOFS, 72
Johann Hjort’s theory of larval survival, 107

keystone species in marine ecosystems, 64
Klyashtorin, L. B., 81
krill, ecological effects of fishery, 274

Labrador Current cold intermediate water, 145
indigenous species, 68
Lamb, H., atmospheric circulation and global \(dT\), 100
landings as proxy for standing stock biomass, 162
Large Marine Ecosystems (LMEs), 268
large predatory fishes, reports of their demise, 159
Las Palmas, port-of-convenience for IUU fishing, 213
Lasker’s ‘critical period’, 108
lifeboat effect, 27
limit reference points, 9
Little Ice Age, 91
Little Ice Age, effects on fish distribution, 130
LOD, length of day, 101
longevity, and pattern of growth, 36

Magnuson–Stevens Act of 1996, 268
mammals pattern of natural mortality and reproduction, 59
unsustainable hunting, 59
management bureaucratisation, 264
by protected areas, MPAs, 282
decision-making, 203
DFO scientific advisory committee, 263
EBFM in Benguela region, 274
ecosystem-based, 265
effectiveness of ITQs, 280

Fairtry I, 135
overseas exploration by European fishing boat owners, 138
Soviet expansion of the 1950, 136
Great Fishing Experiments of 1914–18, 1939–45, 229
growth
determinate, 35
in aquatic organisms, 36
indeterminate, 35
of BOFFs generalised, 40
pattern in fish of cold seas, 39
patterns in fish, 39
Guinea, IUU trawling fleet, 214
Gulf of Thailand, catch statistics, 165
Gulf Stream eddies, 66

Haliotis, drugs and unemployment, 219
Harris report on northern cod stocks, 145
herbivory clupeids, 63
macroherbivorous fish, 63
teleost larvae, 63
herring Bohuslan periods, 93
early collapses of North Sea stocks, 129
eleventh to fourteenth century evolution of European fishery, 129
high-grading at sea, 221
historical evolution of European fishing, 127
HNLC regions, 72
Hutchinson’s paradox of the plankton, 66

IATTC, Inter-American Tropical Tuna Commission, 296
ICCAT and EU in bluefin management, 209
ICES meeting on Climate Change, 1949, 17
role in EU fisheries policy, 207
ICNAF, International Commission for North Atlantic Fisheries, 143
Indian oil sardine, 106
individual quotas and their transferability, 306
industrial whaling, 188
International Fisheries Exhibition, 1883, 17
International Maritime Organisation, 212
International Overfishing Conference, 1946, 229

International Plan of Action of the FAO, 212
IPHC, International Pacific Halibut Commission, 303
IUU fishing by-catch problem, 173
cheating by fishermen at sea, 218
defined, 169
deterrence of sanctions, 220
discard problem, 169
in Gulf of Guinea, 139
mesh regulation evasion, 224

JGOFS, 72
Johann Hjort’s theory of larval survival, 107

keystone species in marine ecosystems, 64
Klyashtorin, L. B., 81
krill, ecological effects of fishery, 274

Labrador Current cold intermediate water, 145
indigenous species, 68
Lamb, H., atmospheric circulation and global \(dT\), 100
landings as proxy for standing stock biomass, 162
Large Marine Ecosystems (LMEs), 268
large predatory fishes, reports of their demise, 159
Las Palmas, port-of-convenience for IUU fishing, 213
Lasker’s ‘critical period’, 108
lifeboat effect, 27
limit reference points, 9
Little Ice Age, 91
Little Ice Age, effects on fish distribution, 130
LOD, length of day, 101
longevity, and pattern of growth, 36

Magnuson–Stevens Act of 1996, 268
mammals pattern of natural mortality and reproduction, 59
unsustainable hunting, 59
management bureaucratisation, 264
by protected areas, MPAs, 282
decision-making, 203
DFO scientific advisory committee, 263
EBFM in Benguela region, 274
ecosystem-based, 265
effectiveness of ITQs, 280
management (cont.)
individual transferable quotas (ITQs), 278
MSE of the Whaling Commission, 265
objective-based, 263
open-access and property rights, 277
opinions, priorities of industry, 263
single-species, 272
social consequences of ITQs, 279
marine ecosystems ‘biodiversity’ and stability, 158
‘red’ variability spectrum, 66
changes of state, 81
characteristic size of herbivores, 60
forcing of regime shifts, 90
regional taxonomic composition, 67
trophic link density, 64
marine food webs, 63
marine herbivory, 61
marine taxonomic diversity, 63
mating systems, threshold population densities, 235
mechanical dredging for oysters, 255
mediaeval ‘commercial revolution’, 127
Mediaeval Warm Period, 91, 128
Mediterranean bluefin tuna industry, 221
Medusa proliferation, 248
megafaunal extinctions, 58
metamorphosis and growth pattern, 35
models age-structured, analytical models, 6
Baranov’s yield-per-recruit formulation, 5
confusion with reality, 95
Ecological Turing Tests, 75
economic models and policies, 196
input data requirements, 12
J. Z. Young’s warnings, 6
logistic model of M. B. Schaefer, 3
of Benguela ecosystem, 74
of ecosystem function, 6
risk management models, 205
use of EwE models to estimate stock status, 185
mortality and age-related change, 36
MSY and EU Fishery Commission, 7
early European approach, 4
economic formulation, 5
in US High Seas Policy, 3
variable with natural mortality, 9
Murphy’s Law of relative stock fecundity, 48
Myers, Ransom, 111
mythic thinking, 57
NAFO, North Atlantic Fisheries Organisation, 143
NAO (North Atlantic Oscillation) index, 85
Neanderthals, use of seafood, 120
New England, evolution of coastal fisheries, 133
Newfoundland Inshore Fishermen’s Association, 145
Newfoundland, historical developments ashore, 131
NMFS, National Marine Fisheries Service, 303
NPFMC, North Pacific Fishery Management Council, 303
Ocean Management Areas, 269
oceanic circulation and data poverty, 70
ova quality, age-related, 43
overcapitalisation bluefin tuna fleet and ICCAT quotas, 222
unplanned expansion of fishing off Morocco, 140
Pacific red king crabs in Atlantic, 240
particle size spectrum of marine biota, 62
PDO (Pacific Decadal Oscillation) index, 87
pelagic habitat, vertical spatial structure, 65
periodicity of synchronous changes in ocean conditions, 105
phytoplankton, functional group ecology, 61
placoderms, and their claspers, 24
planktonic larvae and population dispersion, 22
and problem of first feeding, 23
anomalous in vertebrates, 23
relation to high fecundity, 21
population age structure consequences of curtailing, 45
of yellowfin tuna, 299
population growth rate, 52
post-glacial climate-induced habitat change, 58
potential of global fisheries, 155
potential species extinction by fisheries, 231
precautionary approach, 8
primary production in the ocean, 61
pristine marine fauna
salmon early importation to Paris from Scotland, 128
effect of shift of PDO on Alaska salmon, 95
Salvesen, Christian and whaling, 196
Santiago Declaration, 200 mile jurisdiction, 3
satellite imagery, 67
selachians population growth rates, 21
principal biological characteristics, 21
senescent patterns, 37
sharks fishery for shark fins, 189
reports of NW Atlantic decline, 160
shrimp management by ‘traffic light’ system on Scotia Shelf, 275
tropical shrimp stocks, eastern Atlantic, 139
societal responsibility of scientists, 161
southern bluefin, illegal catches by Japan, 174
Southern Oscillation Index, 83
Soviet ecosystem manipulations, 239
spawner–recruit relationship, 111
spawning aggregations, 236
spawning strategies, 18
spotter planes, illegal use in tuna seining, 222
starving ocean syndrome on Scotia Shelf, 252
State Commission for Fisheries of Russia, 209
stern trawling, 135
stock collapses, statistical data, 232
surplus production and natural ecosystems, 17
sustainability ideal management regime, 294
ideal target species, 295
the foundation of fishery science, 292
Task Force on Atlantic Fisheries, 144
teleost fish unique interaction of growth and reproductive strategies, 291
teleosts biological characteristics, 16
carnivory as dominant feeding habit, 63
telomerase in long-lived organisms, 38

NW Atlantic, 121
Pacific coast, 123
pristine stock structure archaeological evidence, 46
Prohibited Species Catch (PSC) limit legislation, 305
quotas, pressure by industry to increase, 220
r- and K-selection continuum, 41
rapfish technique, ordination of stock status, 187
recruitment dominant year classes, 110
generalisation of variability, 111
of yellowfin tuna, 299
physical forcing of variability, 110
repetitive patterns of variability, 113
variability in benthic organisms, 109
recruitment success and age of adults, 44
in clupeids, 49
in flatfish, 51
in Pacific halibut, 302
reference points and collapse of NW Atlantic cod, 10
biological, 8
their introduction, 7
regime shifts, 90
Regional Fisheries Councils of the USA, 205
regional marine ecosystems (RMEs), 268
regulations, evasion at sea, 221
relative lengths, marine/terrestrial food chains, 61
reproduction allocation of energy to reproduction, 40
duration of reproductive period in fish, 40
modes of reproduction in fish, 20
success and adult size, 39
reproductive strategies fecundity/bestowal continuum, 40
in high latitudes, 114
Revised Management Plan of the IWC, 13
risk management in Cape anchovy fishery, 205
river habitat modification, 128
Rome Declaration on Responsible Fisheries, 212
r-selected/K-selected series of life history characteristics, 188
Russell Cycle, 92

© in this web service Cambridge University Press www.cambridge.org
<table>
<thead>
<tr>
<th>Natural key words</th>
<th>UN</th>
</tr>
</thead>
<tbody>
<tr>
<td>terrestrial ecosystems</td>
<td>Agreement on Straddling and</td>
</tr>
<tr>
<td>early human societies, 57</td>
<td>Highly Migratory Stocks, 8</td>
</tr>
<tr>
<td>large herbivores of megafauna, 57</td>
<td>Conference on the Law of</td>
</tr>
<tr>
<td>tilefish, population collapse, 197</td>
<td>the Sea, 5</td>
</tr>
<tr>
<td>toothfish poaching in Southern Ocean, 223</td>
<td>UNCLOS Convention on the Law of</td>
</tr>
<tr>
<td>trophic cascade</td>
<td>the Sea, 8</td>
</tr>
<tr>
<td>less likely in sea than on land? 63</td>
<td>UNCLOS Compliance Agreement, 211</td>
</tr>
<tr>
<td>Scotia Shelf ecosystem, 250</td>
<td>uncertainty analysis, 204</td>
</tr>
<tr>
<td>truncation of natural age structure by fishing, 241</td>
<td>variability in atmospheric</td>
</tr>
<tr>
<td>tuna</td>
<td>circulation, 82</td>
</tr>
<tr>
<td>management problems in eastern tropical Pacific, 296</td>
<td>Verhulst, logistic function, 2</td>
</tr>
<tr>
<td>regional fisheries management agencies, 131</td>
<td>West African canoe fishing</td>
</tr>
<tr>
<td>reproductive ecology of yellowfin tuna, 298</td>
<td>techniques, 125</td>
</tr>
<tr>
<td>tuna aquaculture, 221</td>
<td>World Ocean Circulation Experiment, 70</td>
</tr>
<tr>
<td></td>
<td>zooplankton group diversity, 62</td>
</tr>
</tbody>
</table>