

Index

A

Acoustic Doppler current profiler, 182, 184
Acoustic modeling techniques, 315
Acoustic propagation, 305, 315–317
ADCP vessel transects, 246
Agulhas current, 179–185, 187, 189–191, 193, 194, 202–205, 207, 210–213
Alternative energy, 237
Ambient noise, 305, 308, 313
Analytical and 1-D models, 262
Annual energy production, 128
Anthropogenic background noise, 309
Anthropogenic sound sources, 305, 318
Arrays, 71–73, 76, 77, 79, 83, 87, 89, 90, 94
Arrays of tidal stream devices, 289
Asymmetry, 123, 124, 126
Auditory evoked potentials, 308, 318
Average currents, 247

B

Barrages, 298
Baseline resource assessment, 14
Beaches, 280, 295, 297, 299
Beach response, 293
Bed shear stress, 279, 282, 283, 287, 289–291, 296
Biological noise impacts, 307

C

Canada, 336–339
Cape Hatteras, 238, 239, 241–244, 246–248, 252, 253
Characteristic parameterizations, 9
China, 339, 340
Coastal circulation, 271

Coastal environments, 305, 306, 311
Commercial fishing activities, 207
Coupled models, 137
Current directions, 254
Current energy, 327
Current magnitude, 194

D

2-D and 3-D models, 264
Data and method, 161
Directional analysis, 199
Drifter, 160–167, 171–174

E

Enabling technologies and emerging solutions, 307
Energetic region
 characteristics of, 194
Energy extraction, 99, 101, 105, 106, 108–110, 112–115, 117, 217, 219, 220, 223, 225, 227, 229–231, 234
Energy production
 implications for, 191
England, 362
Enhanced bottom friction, 148
Environmental impact, 210
European Atlantic coast, 37, 39, 44, 47, 57–60, 65, 66
Extreme wave analysis, 22

F

Flow-noise, 326, 329–331
Flushing time, 259, 260–262, 265–269, 271, 273, 274
France, 37, 38, 40, 42, 52

G

- Galicia, [40](#), [43](#), [52](#), [57](#), [61](#), [65](#)
- Geotechnical and Mooring Considerations, [205](#)
- Global Hybrid Coordinate Ocean Model, [183](#)
- GlobCurrent Data Set, [183](#)
- GlobCurrent, HYCOM, ADCPs
 - comparison of, [185](#)
- Gulf stream, [217–220](#), [223](#), [225](#), [228–231](#), [233](#), [237–239](#), [241–247](#), [249](#), [250](#), [253](#), [255](#), [256](#)

H

- Harmonic analysis, [124](#), [125](#)
- HF radar surface currents, [246](#)
- Higher fidelity resource assessments, [18](#)
- Hydrokinetic energy, [100](#), [219](#), [222](#), [223](#)

I

- Idealized Channel Linking to a Bay, [267](#)
- Idealized Ocean Model Assessments, [227](#)
- Incident wave conditions, [74](#)
- Individual tidal stream devices, [287](#)
- Individual turbine assessments, [101](#)
- Ireland, [38](#), [39](#), [47](#), [51](#), [57](#), [61](#), [65](#), [66](#), [341](#), [343](#), [344](#), [360](#), [361](#)

J

- Japan, [345](#), [346](#)

K

- Kuroshio, Mindanao Current, [159–162](#), [169](#)

L

- Lagoons, [279](#), [298](#), [299](#)
- Long-term variability, [296](#)

M

- Marine energy, [181](#), [213](#), [279](#), [287](#), [292](#)
- Marine energy converter, [323](#), [326](#), [327](#), [330](#)
- Marine Functional Zoning (MFZ), [340](#)
- Marine-mammal protection, [305](#), [318](#)
- Marine renewable energy, [37](#)
- Maritime Spatial Planning (MSP), [333](#)
- Measurements of Stochastic Tidal Resource
 - Characteristics, [126](#)
- MHK device, [309](#)
- MIKE-21 SW, [7](#)
- Mitigation measures, [313](#)
- Model set-up and validation, [47](#)
- Monitoring, [296](#), [297](#)
- Moored ADCP measurements, [245](#)
- Morphodynamics, [279](#), [285](#), [292](#), [295](#), [297–299](#)

N

- Natal pulses, [179](#), [180](#), [187](#), [190–196](#), [201](#), [212](#)
- Natural background noise, [308](#)
- Natural variability, [285](#)
- Nearshore devices, [292](#)
- New Zealand, [346–349](#)
- Nigeria, [349](#), [350](#)
- Noise models, [317](#)
- Noise pollution, [305](#), [318](#)
- Noise sources, [308](#)
- Northern Ireland, [368](#)
- North Pacific, [159](#)
- Norway, [350](#), [352](#), [375](#), [376](#)
- Numerical modeling, [79](#), [101](#), [219](#), [220](#), [259](#), [260](#), [265](#), [273](#)
- Numerical Ocean Model Assessment, [230](#)
- Numerical simulation, [261](#)
- Numerical wave models, [4](#)

O

- Ocean current energy, [218](#), [219](#), [234](#)
- Ocean Current Power Generation
 - site selection for, [169](#)
- Ocean current power resource, [166](#)
- Ocean current resource, [159–161](#)
- Ocean Modelling, [211](#), [212](#)
- Ocean soundscape, [305](#), [310](#)
- Ocean turbine, [238](#), [240](#)
- Offshore devices, [293](#)

P

- Passive acoustic technologies, [314](#)
- Permanent threshold shift, [308](#)
- Phase-Averaged Linear Wave Theory, [81](#)
- Phase-Resolved Linear Wave Theory, [80](#)
- Point absorber, [72](#), [73](#), [79](#)
- Portugal, [38](#), [54](#), [55](#), [352](#)
- Power density, [160](#), [167–169](#), [198](#), [237–240](#), [242](#), [245](#), [246](#), [249–255](#)
- Project assessments, [106](#)
- Propagation models, [315](#)

Q

- Quantifying environmental factors, [24](#)

R

- Regional feasibility assessments, [104](#)
- Regulatory environment, [211](#)
- Relative capture width
 - determination of, [78](#)
- Resource assessment, [99](#), [100](#), [104](#), [106](#), [107](#), [110](#), [112](#), [115–117](#), [217](#), [223](#), [234](#), [263](#)
- ROMS Model, [245](#)

S

Sand banks, 279, 285, 286, 290, 298, 299
 Satellite altimeter, 159–161, 163–166, 169–173
 Satellite Remote Sensing, 191
 Scotland, 40, 42, 47, 48, 57, 59, 65, 365
 Seasonal and interannual variability, 62
 Seasonal variation of current speeds, 162
 Sediments, 279, 281–283, 287–289, 297
 Sediment transport, 279, 281–286, 291–296, 299
 Shipping routes, 208
 Shipping traffic, 305, 309, 310, 318
 Simplified methods, 146
 Site characterization, 132
 South Africa, 355
 Spain, 356
 Spatial distribution, 57
 Spectral wave modelling, 44, 46
 Strategic Environmental Assessment (SEA), 335
 Strong ocean currents, 162
 SWAN, 7, 37, 41–44, 46, 47, 51, 52, 71, 73, 80–83, 88–94
 Sweden, 358

T

Tacoma Narrows in Puget Sound, 269
 Technology considerations, 202
 Temporary threshold shift, 308
 Tidal currents, 121–124, 129, 130, 132
 Tidal dynamics, 262, 265
 Tidal energy, 99–102, 104, 106, 107, 109, 110, 117, 279, 281–283, 285, 287, 288, 290
 Tidal energy resource, 122
 Tidal stream energy, 259, 260, 262, 265, 266, 269, 271, 273
 Tidal turbine, 289, 305, 306, 310, 318
 TOMAWAC, 7

Turbulence, 121, 126–128, 133

U

Uncertainty, 312
 Underwater acoustic networks, 313, 314
 Underwater sound, 326
 Undisturbed Flow Assessments, 225
 United Kingdom, 360
 United States of America, 369

W

Wales, 364
 WAM, 5, 42, 44–46
 WAMIT, 71, 73, 79, 80, 83–85, 87, 90–94
 Water exchange time scale, 259
 Wave-current interaction, 137, 138, 140, 141, 143, 145, 147, 149, 154, 155
 Wave data sources, 2
 Wave energy, 280, 286, 291–296, 299, 323–331
 Wave energy converters, 71–81, 83–88, 90, 91, 94
 Wave-energy devices, 305, 306, 311, 318
 Wave instrumentation, 77
 Wave measurements, 2
 Wave radiation stress, 142, 148, 151
 Wave resources, 37, 39, 41, 42, 44, 46, 57, 62, 63, 65, 66
 Wave scattering, 71, 80, 90, 93, 94
 Wave spectra, 9
 Wave-tide interaction, 137, 138, 140–143, 145, 153, 154
 WaveWatch III, 37, 41, 42, 44–48, 51, 52, 54, 55, 57
 WEC deployments, 28
 Wind-farm noise, 308, 309, 312
 WWIII, 6