

## Index

- abalone, 250–1, 340, 342, 421, 462  
 abundant centre hypothesis, 239  
 abyssal Indian Ocean province, 475  
*Acanella*, 477  
   *Acanella arbuscula*, 477  
   *Acanella eburnea*, 477  
*Acanthaster planci*, 342–3  
*Acanthinucella spirata*, 245  
*Acanthocyclus gayi*, 317  
*Acanthocyclus hassleri*, 328  
*Acanthogorgia*, 479  
*Acanthogorgiidae*. *See Acanthogorgia*  
*Acanthophora nayadiformis*, 217, 221, 228  
*Acanthopleura echinata*, 313  
*Acanthopleura japonica*, 373  
*Actinia equina*, 17  
 Actinobacteria, 449  
*Adna anglica*, 50  
 Aegean Sea, 216–17, 224–5  
*Aequipecten opercularis*, 52  
*Agarum*, 265, 276  
   *Agarum clathratum*, 91  
   *Agarum cribosum*, 104  
   *Agarum fimbriatum*, 276, 278  
 Agulhas Bank, 333  
 Agulhas Current, 333–4, 339, 347  
*Ahmfeltiopsis*, 171, 176  
*Ajuruteua peninsula*, 436  
*Alaria*, 276  
   *Alaria esculenta*, 12, 14–15, 17, 29, 56  
   *Alaria fistulosa*, 265  
 Alariaceae, 265  
 Alaska Current, 262  
*Alcyonacea*, 342, 479  
*Alcyoniidae*, 479  
*Alcyonium digitatum*, 52  
*Alcyonium hibernicum*, 49  
 Aleutian Islands, 102, 260, 265–6, 274  
 Aleutian Low, 274  
 algae  
   canopy, 13, 17, 19, 193, 195, 204, 218, 223–4, 226, 398, 406, 421, 459, 463  
   crustose coralline, 19, 75, 91, 100, 169, 200, 250–1, 319, 401  
   detritus, 13, 25, 29, 80, 98, 223, 270, 466  
   encrusting, 28, 54, 65, 99, 196–7, 200, 281, 339–40, 342, 372–4, 376, 396, 456  
   ephemeral, 16–17, 21, 28–9, 51–2, 65–6, 69, 74, 76, 78, 140, 170, 315–16, 374, 376, 396, 400–1, 422, 462, 476, 493–4  
   spores, 53, 276, 278, 280, 314  
   sweeping, 8, 17, 19, 449, 458  
   turf, 14, 16–19, 28, 54, 56–7, 102, 115, 191, 193–6, 198–9, 204, 218, 224, 264, 396, 399, 402, 404–5, 408, 417, 421–4, 493  
   understorey, 13, 17, 19, 193–5  
   zygote, 53, 71–2, 194, 204  
 alien. *See non-indigenous species*  
 Allee effects, 12, 244  
 allopatric speciation, 10, 346  
 alternative stable states, 54, 70–1, 192, 220  
*Alvinella pompejana*, 476  
 American lobster. *See Homarus americanus*  
*Amphianthus dohrnii*, 50  
*Amphibalanus amphitrite*, 175, 177  
 amphipod, 49, 145–6, 149, 151, 171, 174, 264, 317, 344, 478–9  
*Anarhichas lupus*, 105  
*Anasterias antarctica*, 173–4  
*Anaulus australis*, 336  
 anemone, 17, 50–2, 110, 166, 174, 478–9  
*Anemonia viridis*, 51  
 Anisaki, 202  
 annelid, 80, 282  
*Anolis* lizards, 441  
*Anotrichium furcellatum*, 178  
 anoxia, 150, 254, 435  
*Anpheltiopsis*, 176  
 Antarctic Circumpolar Current, 308, 329  
 Antarctic convergence, 475  
 Antarctica, 475, 494  
*Anthocidaris crassispina*, 374  
*Anthomastus grandiflorus*, 479  
*Anthosactis pearseae*, 478  
*Anthothela*, 477  
*Anthothoe chilensis*, 174  
 anthozoa, 112  
 antipatharia, 477, 481  
*Antipathes*, 481  
   *Antipathes robillardii*, 477  
 apex predator, 103–4, 218  
*Aplodactylus punctatus*, 315, 318–19  
 aquaculture, 108–9, 196, 202, 282, 321, 379–80, 382, 499  
*Arbacia lixula*, 197, 225  
 Arctic Ocean, 9  
*Arenicola marina*, 146, 161  
 Argentine Province, 165–6  
 artificial reef, 260  
 artificial structure, 1, 4, 9, 13, 20–1, 24–5, 28, 47, 52–5, 76, 110–11, 164, 174, 176–7, 198, 204, 260, 282, 321, 368, 379–80, 382, 449, 454, 457, 465, 498  
 Ascidiacea, 76–7, 109–10, 178, 200, 282, 321, 339, 342, 347, 440  
 ascidian. *See Ascidiacea*  
*Asciidiella aspersa*, 178  
*Ascophyllum nodosum*, 10, 13, 65  
 ascothoracid. *See Ascothoracidae*  
 Ascothoracidae, 479  
 Asian shore crab. *See Hemigrapsus sanguineus*  
*Asparagopsis armata*, 319  
*Assiminea globulus*, 344  
*Asterias rubens*, 50, 64, 111, 116  
 Asteroiidae, 166, 266  
 asteroid. *See Asteroiidae*  
*Asteroschema clavigerum*, 481  
 Atacama trench, 475  
 Atlantic halibut. *See Hippoglossus hippoglossus*  
 Atlantic herring. *See Clupea harengus*  
 Atlantic Ocean  
   north, 62, 64, 116, 268, 398, 475–6, 493  
   north-east, 7–29, 47–57, 115, 463, 493  
   north-west, 9, 61, 90, 128–54, 492  
   south-west, 164–80  
 Atlantic sturgeon, 135, 145  
 Atlantic wolfish, 105  
*Aulacaspis marina*, 440  
*Aulacomya atra*, 166, 319, 340

- Aulacomya maoriana*, 395  
 Australasia, 392, 409, 414  
*Austrominius modestus*, 24–5  
*Avicennia germinans*, 435–6, 438, 445  
*Avicennia marina*, 433, 435, 437, 441  
 Azores, 9, 11, 16–17, 398
- BACI. *See*  
   before–after–control–impact
- Bacteroidetes, 449, 460  
 bait digging, 149–50  
 Baja California, 177, 237–41, 243–5,  
   265–6, 268–9, 273  
*Balanus albicostatus*, 372  
*Balanus glandula*, 166, 170, 176–7, 188,  
   247, 348, 463  
*Balanus laevis*, 313  
*Balanus perforatus*. *See* *Perforatus*  
   *perforatus*  
*Balanus trigonus*, 177  
 ballan wrasse. *See* *Labrus bergylta*  
 Banks Peninsula, 393, 403  
 Barkley Sound, 278  
 barnacle  
   *balanoid*, 9, 313, 336  
   *chthamaliid*, 9, 23, 28, 220  
 barnacles  
   competition, 12, 24, 177, 221  
   cyprid, 19  
   hummock formation, 24, 179  
   larvae, 12, 23, 463  
   recruitment, 12, 23–4, 66, 69–70,  
     72, 173, 177, 220, 376, 463  
   settlement, 8, 12, 19, 23, 220, 253,  
     376, 378, 397, 400  
   zone, 16  
 bathyal diversity peaks, 481  
*Bathymodiolus*, 476, 478  
*Bathypathes*, 481  
 Bay of Antofagasta, 321  
 Bay of Biscay, 9, 11, 23  
 Bay of Fundy, 64–6, 75, 93–4, 111,  
   130–1, 134–5, 145–7, 151  
 Bay of Mont Saint Michel, 10  
 before–after–control–impact, 283  
*Bembicium nanum*, 396, 401, 461  
 Benguela Current, 333, 335, 349  
 benthic–pelagic coupling, 263, 270  
 Benthoctopus, 478  
 Bering land bridge, 268  
 Bering Sea, 260  
 betanodavirus, 202–3  
 Between Pacific Tides, 237  
*Bifurcaria bifurcata*, 9–10, 22
- BIOBLOCK, 21  
 biofilm, 26, 99, 197, 377, 466, 491,  
   498  
   cyanobacteria, 373, 376  
   diatom, 145  
 biofouling, 172, 466  
 biogenic reef, 90, 178, 214  
 biological invasions. *See* non-  
   indigenous species (NIS)  
 bioremediation, 55  
 bioturbation, 139, 439  
 black corals, 479–81  
 Black Sea, 190, 475  
 blenny, 222  
*Blidingia*, 16, 462  
 blue crab. *See* *Callinectes sapidus*  
*Boccardia proboscidea*, 177  
 Bohai Sea, 365–6  
*Botrylloides diegensis*, 77  
*Botrylloides violaceus*, 282  
*Botryllus schlosseri*, 282  
 bottom-up processes, 76, 106, 237,  
   247, 252–4, 270, 283, 307–22,  
   342, 381–2, 448–9, 463–4, 491  
*Bovichtus argentinus*, 173  
*Brachidontes*, 174, 219  
   *Brachidontes hirsutus*, 396, 402  
   *Brachidontes pharaonis*, 217  
   *Brachidontes rodriguezii*, 166, 170,  
     173, 177–8, 180  
*Brassica oleracea*, 437  
 Brazil Current, 165  
 Brazil–Malvinas confluence, 165  
 breakwater. *See* artificial structure  
 British Isles, 8–10, 12–13, 16, 18, 21,  
   23–4, 29, 462, 499  
 brown food web, 80  
 bryozoan, 49–51, 53–4, 97, 109, 115,  
   166, 200–2, 280, 282  
 Busycon, 145  
 Buzzards Bay, 131
- Calidris pusilla*, 145  
 California Current, 245, 262, 271,  
   274  
 California sea otter. *See* *Enhydra*  
   *lutris nereis*  
 California sheephead. *See*  
   *Semicossyphus pulcher*  
 California spiny lobster. *See* *Panulirus*  
   *interruptus*  
 California transition zone, 264  
 Californian province, 264  
*Callinassa kraussi*, 344
- Callinectes sapidus*, 135, 139–40, 144–5,  
   148–52, 154, 442  
*Callogorgia delta*, 477  
*Callogorgia verticillata*, 481  
*Cancer*, 93, 102, 107, 271  
   *Cancer borealis*, 103, 107  
   *Cancer irroratus*, 103, 107, 109, 152  
   *Cancer pagurus*, 57  
*Candidella*, 479  
   *Candidella imbricata*, 479  
 cannibalism, 106, 339, 349  
 Cape Blanco, 270  
 Cape Breton Island, 65, 111  
 Cape Canaveral, 130, 134  
 Cape Cod, 64–5, 72, 77, 90, 93, 106,  
   111, 128–31, 134–48, 152–4  
 Cape Hatteras, 93, 129–39, 147, 152  
 Cape Horn Current, 308  
 Cape Mendocino, 240, 252, 269–70  
 Cape of Good Hope, 333  
 Cape urchin. *See* *Parechinus*  
   *angulosus*  
*Capitulum mitella*, 372, 374  
 carbon enrichment, 422, 424  
 carbon storage, 55  
*Carcinus maenas*, 10, 57, 65–6, 73–4,  
   76–7, 107–8, 151, 156, 178, 496  
 Caribbean Sea, 223  
*Carpophyllum angustifolium*,  
   394  
*Carpophyllum plumosum*, 394  
*Caryophyllia smithii*, 50  
 catastrophe theory, 192–3  
*Catomerus polymerus*, 396  
*Caulerpa*  
   *Caulerpa cylindracea*, 198–9, 224  
   *Caulerpa prolifera*, 135  
   *Caulerpa racemosa* var. *cylindracea*.  
     *See* *Caulerpa cylindracea*  
   *Caulerpa taxifolia*, 224  
 caulerpenyne, 199  
 caulerpicin, 199  
 caulerpin, 199  
*Cellana*  
   *Cellana denticulata*, 394, 401  
   *Cellana flava*, 395  
   *Cellana grata*, 373–4  
   *Cellana ornata*, 402  
   *Cellana radians*, 400–2  
   *Cellana rota*, 227  
   *Cellana strigilis*, 395  
   *Cellana toruema*, 377  
   *Cellana tramoserica*, 396, 399–401,  
     406, 461

- Centrolabrus exoletus, 51  
 Centrostephanus rogersii, 56, 418, 421, 423  
 cephalopod, 311  
 Ceramium, 169  
 Cerastoderma edule, 147  
 Cerithium scabridum, 225  
 Chaetopleura isabellei, 171  
 Chamaesipho columna, 396  
 Cheilodactylus variegatus, 317–19  
 chemoautotrophic microbial symbionts, 479  
 Chesapeake Bay, 93, 107, 130, 132, 149, 151  
 China Coastal Current, 366  
 Chionoecetes opilio, 104  
 chirostyliids, 481  
 chiton, 54, 166, 171, 173, 263, 313–16, 373–4, 378  
*Chiton granosus*, 314, 316  
 chlorophycophyta, 169  
 chlorophyll *a*, 132–3, 274, 400, 450, 452, 455–6  
*Chondrus crispus*, 16, 65, 72, 102  
*Choromytilus meridionalis*, 340  
 Chrysogorgia, 479  
 Chrysogorgiidae. *See* *Chrysogorgia*  
 Chthamalus  
   *Chthamalus challengeri*, 380  
   *Chthamalus fissus*, 243–4  
   *Chthamalus fragilis*, 93  
   *Chthamalus malayensis*, 369, 374  
   *Chthamalus montagui*, 10–12, 23–4  
   *Chthamalus stellatus*, 10–12, 23–4, 220–1  
 Chukchi Sea, 261, 274  
*Ciona intestinalis*, 52, 321  
*Ciona savignyi*, 282  
 cirratullids, 169  
 Cladophora, 169  
 climate change. *See* global change  
 climax community, 52  
*Clupea harengus*, 75–6, 105, 107  
*Clymenella torquata*, 147  
 cnidarian, 50, 200, 263–4, 282  
 coastal erosion, 272  
 coastal hardening. *See* artificial structure  
 coastal lagoons, 134  
 coastal topography, 24, 269, 492  
 Cocos Plate province, 476  
 cod, 102–3, 116  
   Atlantic cod. *See* *Gadus morhua*  
   cod fishery, 104  
*Codium fragile*, 76, 98, 108–9, 169  
*Codium fragile* var. *tomentosoides*, 321  
 cold seep, 474–5, 478  
*Colisella dorsuosa*, 374  
 colour-infrared imaging, 448, 455–6, 465  
*Colpomenia*, 374  
*Colpomenia peregrina*, 76  
 commensalism, 51  
 competition  
   for space, 16, 49, 51–2, 110, 147, 348, 378, 457  
   interspecific, 20, 107, 170–1, 221, 239, 317, 401, 438, 482  
   intraspecific, 18, 20, 24, 106, 239, 251, 339, 401, 407, 438  
*Concholepas concholepas*, 314, 319, 339  
 cone theory, 477  
 confocal laser scanning microscopy, 450–1  
 Conger conger, 51  
 Conger eel. *See* Conger conger  
 connectivity, 24, 147–8, 205, 268, 273, 379, 393, 415, 417, 419–20, 474  
 Connell, 29, 62, 221  
*Conocarpus erectus*, 441  
 consumer stress model, 68–9, 71, 247–9  
 Cook Strait, 393, 416  
 copepod, 51, 479  
 coral, 49–50, 110–12, 192, 222–3, 230, 318, 334, 342–3, 360, 368, 372, 417, 420–1, 460, 477, 479–81  
   deep-sea, 110, 112, 115, 476  
   coral reef, 111, 222–3, 334, 342–3, 360, 368, 421, 460, 481  
   collapse, 192  
*Corallina elongata*. *See* *Ellisolandia elongata*  
*Corallina officinalis*, 166–9, 372, 397  
*Corallium rubrum*, 477  
 Coriolis effect, 312, 491  
*Corophium volutator*, 145–7, 151  
 Costaria, 265  
   *Costaria costata*, 278  
 cownose rays. *See* *Rhinoptera bonasus*  
 crab  
   crab fisheries, 107  
   grapsid, 10, 21  
*Crassilabrum crassilabrum*, 317  
*Crassostrea gigas*. *See* *Magallana gigas*  
*Crassostrea virginica*, 111, 202  
*Crepidula fornicata*, 55  
 crown-of-thorns starfish. *See* *Acanthaster planci*  
 cryptic species, 307, 313, 344, 347, 364, 380  
*Cryptocotyle lingua*, 65  
*Cucumaria miniata*, 277  
 cyanobacteria, 16, 26, 66, 166, 313, 315, 340, 372–4, 376, 449–50, 452–71, 494  
*Cymbula oculus*, 18  
*Cyrtograpsus altimanus*, 173–4  
*Cyrtograpsus angulatus*, 173–4  
 Cystophora, 396  
*Cystoseira*, 9–11, 194, 197–8, 202, 204–5, 224, 229–30  
   *Cystoseira abies-marina*, 16  
   *Cystoseira abrotanifolia*. *See* *Cystoseira foeniculacea*  
   *Cystoseira amentacea*, 194–5  
   *Cystoseira foeniculacea*, 217  
   *Cystoseira rayssiae*, 229  
*Dasysiphonia japonica*, 76, 108  
 dead men's fingers. *See* *Alcyonium digitatum*  
 decomposer, 336  
 deep sea, 474–82  
 Deepwater Horizon oil spill, 481  
 Delaware Bay, 128, 132, 134, 139, 151  
 Delaware River, 93  
*Dendropoma petraeum*, 214, 226  
*Dermonema*, 374  
*Desmarestia*, 375  
   *Desmarestia lingulata*, 273  
   *Desmarestia viridis*, 104  
*Desmophyllum dianthus*, 477  
 Diaspidodae, 440  
 diatom, 16, 26, 336, 376, 399, 449, 452, 455, 457–62, 465  
*Dictyoneuroopsis reticulata*, 265  
*Dictyota*, 375  
*Didemnum vexillum*, 109–10, 282  
*Diopatra*, 12, 144, 152  
   *Diopatra cuprea*, 139  
*Diplodus sargus*, 199  
 dissolved oxygen, 20, 193  
 dissolved pCO<sub>2</sub>, 77  
 disturbance, 15, 24, 52, 57, 93–6, 110, 128, 135–9, 144–6, 148–54, 178, 196, 267, 320, 402–5, 407–9, 423, 436, 449, 481–2, 492  
   biological, 8, 25  
   ice, 104, 116, 154

- physical, 49, 109, 398  
 sediment disturbance, 148  
 storm, 49, 272
- DNA, 246, 450  
 barcoding, 270  
 sequencing, 477
- dogwhelk, 16, 29, 66, 74, 374
- Donax*, 336
- downwelling, 248, 252–3, 270, 340, 477
- Drake Passage, 310, 312
- dredging, 112, 148, 154
- Durvillaea*, 417, 493, 496  
*Durvillaea antarctica*, 309, 394, 405  
*Durvillaea poha*, 394, 405
- East Asian monsoon, 367
- East Auckland Current, 393, 416, 420
- East Cape, 393–4
- East China Sea, 364
- Eastern Boundary Upwelling System, 252–3, 322
- Eastern Maine Coastal Current, 93
- Echinolittorina malaccana. *See* Nodolittorina pyramidalis
- Echinolittorina radiata. *See* Nodolittorina exigua
- Echinolittorina vidua, 373
- Echinomermella matsi, 55
- Echinostephilla patellae, 28
- Echinus  
*Echinus acutus*, 54–5  
*Echinus esculentus*, 28, 52
- Ecklonia maxima, 340
- Ecklonia radiata*, 340, 392, 416–17, 419, 421
- ecological engineering, 20
- ecosystem functioning, ix, 2–3, 8, 26–7, 111, 165, 180, 199, 281, 314, 317, 321, 335, 342, 380, 441–2, 463–5, 491, 493, 496
- ecosystem services, 55, 57, 91, 111, 179, 192, 283, 322, 449, 465
- Ectocarpus, 17
- eelgrass. *See* *Zostera*
- Egredia menziesii, 276
- Eisenia arborea, 265, 273
- Ekman transport, 262, 312
- El Niño southern oscillation, 274, 290, 330, 491, 494
- Ellisolandia elongata, 217, 228
- emersion. *See* zonation, vertical
- Endarachne*, 374
- English Channel, 8–9, 12–15, 24
- Enhydra lutris, 266
- Enhydra lutris nereis, 251
- Enoplochiton niger, 309, 313–14
- ENSO. *See* El Niño southern oscillation
- Enteromorpha. *See* Ulva
- environmental scanning electron microscopy, 453–71
- epifauna, 90, 146, 154, 345
- epiflora, 90
- epifluorescence light microscopy, 450–1
- epifluorescence microscope  
 photometer, 451
- epilithic microphytobenthos, 455
- Epinephelus, 202–3  
*Epinephelus costae*, 203  
*Epinephelus marginatus*, 202
- Epizoanthus, 481
- epizootic shell disease, 106
- EPS. *See* extracellular polymeric substances
- Eriphia, 374
- ESEM. *See* environmental scanning electron microscopy
- Eugorgia, 477
- Eunicella verrucosa, 50
- eunicid, 169, 479
- EUNIS. *See* European Union Nature Information Systems
- Euraphia depressa, 220
- Euraphia withersi, 373
- European Union Nature Information System, 48
- EUROROCK, 18, 21, 27, 114, 381, 499
- eutrophication, 56–7, 63, 75, 77, 128, 149–51, 193, 217, 281, 422, 497
- exclusion experiment, 173, 378, 439
- exotic species. *See* non-indigenous species
- expansion–contraction model, 245
- extinction, 64, 75, 105, 191, 226, 229, 244, 250, 268, 273, 310–11, 416, 420, 476, 499
- extracellular polymeric substances, 457
- extreme event, 144–6, 194, 221, 227, 247, 392, 421, 491
- facilitation, 8, 20, 57, 62, 72, 169–70, 223, 377–9, 431–43, 461, 479–81
- fatty acid analysis, 98, 344
- Favia speciosa*, 372
- Fiordland, 393, 418
- Firth of Clyde, 23, 53, 491
- Fischer-Piette, 3, 8, 11, 29
- fish  
 herbivorous, 197, 222–3, 226, 228, 318, 375, 405, 419, 421, 460
- fish stocks, 104, 192  
 collapse, 104–6
- fisheries  
 finfish, 91, 105  
 invertebrate, 91, 104–8  
 lobster, 75, 107  
 sustainable, 56
- Fissurella*, 314–16, 319  
*Fissurella crassa*, 314–15  
*Fissurella latimarginata*, 318  
*Fissurella limbata*, 313  
*Fissurella maxima*, 313  
*Fissurella picta*, 315  
*Fissurella radiosa tixierae*, 169, 172
- flickering, 194
- food web, 63, 65, 74–5, 79, 81, 104–8, 150, 152, 179, 199, 203, 214, 218, 223, 226–7, 229, 263, 271–2, 274, 314, 317–18, 320, 336, 422, 448
- foraging, 16–17, 21, 28, 65, 69, 71, 74–5, 79, 99, 111, 144, 149, 152, 154, 247–9, 251, 273, 278, 315, 402, 449
- foraminifera, 172, 223–4
- fouling communities, 50, 72, 110–11
- freshwater input, 153
- fucoids. *See* *Fucus*
- Fucus*  
*Fucus distichus*, 10, 14, 66  
*Fucus distichus* subsp. *evanescens*, 66  
*Fucus evanescens*, 10  
*Fucus guiryi*, 11, 21  
*Fucus serratus*, 10, 14–16, 19, 21, 66, 76, 108  
*Fucus spiralis*, 10–11, 13–16, 19, 21, 66  
*Fucus vesiculosus*, 15  
*Fucus vesiculosus*, 10, 13–16, 19, 21, 65–6, 80
- fungi, 439, 442, 449, 452, 457
- GABA. *See* gamma-aminobutyric acid
- Gadus morhua*, 75, 104
- Galapagos Islands, 397
- Galathea*, 50–1
- Galaxaura rugosa*, 224–5
- gamma-aminobutyric acid, 462
- Gazi Bay, 434
- Gelidium*, 313, 319, 373–4, 376  
*Gelidium pusillum*, 396

- gene flow, 147, 252, 268–9, 311, 346–7, 369, 476
- genetic connectivity, 273
- genetic diversity, 65, 240–1, 269, 346, 420
- Georges Bank, 130
- Gibbula. *See* Steromphala
- Girella laevifrons, 319
- global change, 10, 22, 27–8, 53, 62–3, 75, 77–8, 91, 113, 115–16, 128, 132, 154, 178–9, 191, 194, 202–3, 214, 221, 223, 226–31, 240–1, 244–51, 253, 270–1, 274, 279, 283, 310, 314, 320, 322, 339–40, 343, 345–7, 349, 379, 381, 391, 407, 415, 421, 423–4, 494–500, *See* global warming. *See* global change
- Glycera*, 149–50
- gobies. *See* gobiids
- Gobiesox maeandricus, 269
- gobiids, 52, 222
- gonadosomatic index, 199
- gorgonian, 112, 200–2
- Gorgoniapolynoe caeciliae, 479
- Gorgoniapolynoe muzikae, 479
- gradient
- environmental, 1, 8, 17, 61, 79, 275–9, 314, 381, 478, 488, 492
  - horizontal shore. *See* wave exposure
  - latitudinal, 150, 265–6, 345, 375, 381, 392–3, 416
  - latitudinal gradient, 13
  - vertical shore. *See* zonation, vertical
- Grapsus albolineatus, 373
- Grateloupia turuturu, 76
- Graus nigra, 317
- green crab. *See* Carcinus maenas
- green webs, 81
- Greenland, 9, 29, 90, 93, 97, 129, 131
- Gulf of Alaska, 262, 275–6
- Gulf of Maine, 62, 64–5, 69, 72, 75–8, 93–7, 102–3, 129–34
- Gulf of Nuevo, 165, 172, 178
- Gulf of Saint Lawrence, 91, 93, 103
- Gulf of San Matías, 165
- Gulf Stream, 29, 90, 93, 129, 132
- habitat availability, 148, 239–40, 317, 417
- habitat fragmentation, 151
- habitat modification, 77, 432
- habitat mosaic, 10
- habitat restoration, 192
- haddock. *See* Melanogrammus aeglefinus
- Haematopus ater, 174
- Haematopus leucopodus, 174
- Haematopus moquini, 348
- Haematopus ostralegus, 28
- Haematopus palliatus, 174
- Haifa Bay, 217
- Hainan Current, 366, 368
- Halicarcinus planatus, 173–4
- Halichoerus grypus, 50, 104
- Halichondria panacea, 17
- Halimeda tuna, 219
- Haliotis, 244, 462
- Haliotis cracherodii, 250–1
- Haliotis midae, 340
- halocline, 55
- Halodule, 128
- Halodule wrightii*, 134–5, 144, 147, 153
- Halopteris paniculata, 319
- Halopythis, 198
- Hapalospongidion, 374, 452
- hard coral, 342–3
- Harmothoe acanellae, 479
- harvesting, 18, 55, 75–6, 102–3, 109, 148–50, 239, 246, 250–2, 254, 310, 315–21, 342, 379
- Hatton, 3, 8
- heat shock protein, 78
- heat waves, 62, 200–2, 205, 226–7, 321, 415
- Hedophyllum, 276
- Heliaster helianthus*, 314, 317, 319–20
- Heliocidaris erythrogramma, 418
- Hemigrapsus sanguineus, 73, 109
- herbivorous fish, 10, 21, 28
- herring. *See* Clupea herengus
- herring fishery, 76
- Hesperibalanus fallax, 50
- Heterosiphonia japonica. *See* Dasyisiphonia japonica
- Heterozostera tasmanica, 321
- hexacorallia, 481
- Hexaplex trunculus, 215, 219
- Hiatella, 174
- Hildenbrandia*, 372–4
- Hildenbrandia lecanellieri*, 313
  - Hildenbrandia rosea*, 65
  - Hildenbrandia rubra*, 396
- Himanthalia elongata*, 10, 14, 16, 22
- Hincksia, 374
- Hippoglossus hippoglossus, 105
- Histiobranchus, 478
- HMS Scylla, 52
- Homarus americanus*, 93, 100, 105–8, 115, 124
- Homarus gammarus*, 50
- Hood Canal, 282
- Hoplangia durotrix, 49
- Hormosira banksii*, 392, 396, 401–2
- host–parasite interactions, 4, 28
- hsp-70. *See* heat shock protein
- Huai River, 367
- Hudson River, 93
- Humboldt Current, 308–10, 312, 314, 319–21
- hydrography, 2, 8, 10, 24, 365–8, 491
- hydroid, 50–1, 280, 481
- hydrothermal vent, 474–6, 478
- hydrothermal vent communities, 478
- hydrozoan, 50, 54, 166, 200
- Hymeniacidon perlevis, 17
- Hypnea musciformis, 217
- hypoxia, 146, 150–1
- hysteresis, 193, 196
- Iberian, 8, 13, 21, 491
- ice abrasion. *See* ice scour
- ice scour, 61–2, 64, 70–1, 94–7, 104, 116, 135, 146, 153–4
- ichthyofauna, 343
- Idotea balthica, 64
- Ilyanassa obsoleta, 139
- Inachus, 51
- Indian Ocean, 346, 475, 497
- Indo-Pacific, 3, 190, 214, 222–3, 226, 369
- inducible defences, 73–4, 80
- intermittent upwelling hypothesis, 252–4
- intertidal
- muddy, 64, 146, 360, 370, 379, 440
- invasive species. *See* non-indigenous species
- Irish Sea, 9, 12, 24, 47
- Ishige okamurai, 372
- Isozoanthus primnoidus, 479
- Jania rubens, 217
- Jasus edwardsii, 318, 419
- Jasus lalandii, 340, 342
- Java hadal province, 475
- Java trench, 475
- Jehlius cirratus, 314
- Jensen's inequality, 81
- Jiaozhou Bay, 372
- John Dory. *See* Zeus faber



- Jonah crab. See *Cancer borealis*
- Junonia coenia*, 439
- Junonia genoveva*, 438–9
- Kamchatka Peninsula, 94
- Kandelia candel*, 433
- kelp  
 biomass, 13  
 deforestation, 267–8, 271–2, 418, 422  
 forest communities, 47  
 frond, 49–50, 98, 348  
 harvesting, 318, 320  
 holdfast, 49, 56, 103, 112, 272, 319  
 nutrient uptake, 49, 277  
 rafting, 270  
 zone, 48
- kelp biomass, 98, 109
- keystone predator, 100, 250, 255, 267, 317, 339
- Kitching, 3
- Kiwa, 479
- Knysna Estuary, 343–4
- Kuroshio Current, 274, 365, 369
- KwaZulu-Natal coast, 342
- Kyphosus analogus*, 319
- Kyrtuthrix*, 374  
*Kyrtuthrix maculans*, 372–3
- Labrador, 93, 95, 97, 112–14, 129, 131
- Labrador Current, 77, 93, 95, 129–30
- Labrus bergylta*, 51
- Lacuna vincta*, 66, 115
- Laguncularia racemosa*, 438–9
- Laminaria  
*Laminaria complanata*, 278  
*Laminaria digitata*, 10, 13, 15–17, 28–9, 55, 100  
*Laminaria farlowii*, 265  
*Laminaria hyperborea*, 15, 49, 54–6  
*Laminaria ochroleuca*, 13  
*Laminaria pallida*, 340  
*Laminaria saccharina*. See *Saccharina latissima*
- Laminariales, 97, 260, 276, 414, 417
- Laminarians. See *Laminaria*
- Langebaan Lagoon, 343–4
- Lanice conchilega*, 146
- Larus dominicanus*, 174
- larvae  
 behaviour, 15, 347  
 dispersal, 56, 269, 277, 347, 380  
 distribution, 8, 23  
 quality, 24
- release, 12
- retention, 23, 242, 313
- settlement, 314, 462
- supply, 14, 29, 106, 277, 312–13
- last glacial maximum, 64, 148, 269, 313, 364–5
- latitudinal gradient, 56–7, 94, 139
- latitudinal patterns. See zonation:  
 latitudinal
- Laurencia, 221
- Leeuwin Current, 416, 428
- Leiopathes, 481
- Leizhou Peninsula, 367
- Leptasterias polaris*, 111
- Leptogorgia*, 477
- Leptopsammia pruvoti*, 49
- Lessepsian migration, 3, 197, 199, 214, 497
- Lessonia*, 307, 313, 317, 320, 417  
*Lessonia berteroaana*, 313  
*Lessonia nigrescens*, 313  
*Lessonia spicata*, 313  
*Lessonia trabeculata*, 317, 319
- Levant reef, 214–31
- Levantine Basin, 3, 214–30
- Lewis, 8
- lichen, 16, 169
- Limnoperna pulex*, 395
- limpet  
 bulldozing, 251, 378, 462  
 grazing, 15–17, 21, 26, 173, 248  
 harvesting, 18, 239, 243, 252, 315  
 home range, 239, 251–2  
 homing, 17, 172, 316, 462  
 patellid, 9–10, 16, 19, 28, 148, 406, 492, 499  
 scurrinid, 314–15
- Limulus polyphemus*, 145, 148
- Lineus, 150
- lionfish. See *Pterois miles*
- Liponema brevicornis*, 478
- Lissoclinum fragile*, 178
- Lithophaga patagonica*, 166, 170
- Lithothamnion, 313
- Littoraria scabra*, 372
- Littoraria sinensis*, 372, 377, 381
- Littorina*, 73–4  
*Littorina articulata*, 372  
*Littorina brevicula*, 372, 381  
*Littorina littorea*, 10, 15, 24, 26, 62, 65–6, 69, 73, 76, 78, 108, 462, 492  
*Littorina obtusata*, 64, 66, 73  
*Littorina saxatilis*, 15–16
- littorinid*, 16, 23, 28–9, 336, 364, 371–4, 378–9, 396, 460–1, 494
- lobster, 50, 57, 75–6, 93, 98, 100, 105–8, 115, 152, 266, 339–40, 342, 418–21, 478–9
- local extinction, 229, 244, 250, 311, 420, 476, 499
- Lofoten Islands, 15
- Long Island Sound, 64, 77, 93, 97, 130–2, 134–5, 147
- Lontra felina*, 319
- Lophelia pertusa*, 477
- Lottia*  
*Lottia digitalis*, 462  
*Lottia gigantea*, 239, 241, 251, 462  
*Lottia luchuana*, 373  
*Lottia scabra*, 241, 244
- Loxechinus albus*, 313, 317–19
- Luidia magellanica*, 317, 320
- Lunella*  
*Lunella smaragdus*, 394, 401–2  
*Lunella undulata*, 396, 401
- Macklintockia scabra*, 462
- Macrocystis*  
 bed, 268  
 deforestation, 267–8, 271–2  
*Macrocystis intergrifolia*, 317  
*Macrocystis pyrifera*, 241, 265, 273, 276, 319, 420
- Magallana gigas*, 24–5, 28, 177, 282
- Magdalena Bay, 237, 243–5
- Magellanic Province, 165–7, 311–12
- Malvinas Current, 165–6, 310
- mangrove, 225, 334, 343, 360, 368–9, 431–43, 493, 496–7
- mangrove crab, 343
- Marenzelleria*, 151
- Mariana hadal province, 475
- Mariana trench, 475
- marine mammal, 75, 275, 318–19
- marine protected areas, 53, 203, 318, 332, 371, 407, 418
- Marthasterias glacialis*, 339
- mass mortality, 100, 115, 146, 200–3, 221, 226, 250, 494
- Mastocarpus stellatus*, 17, 66, 72
- Mazzaella*, 307, 313  
*Mazzaella laminarioides*, 313–16
- Mebraniopora membranacea, 280
- Mediterranean Sea, 10, 190–205, 214–31, 497, 499
- Megabalanus*, 374  
*Megabalanus azoricus*, 11

- Megabalanus (cont.)  
*Megabalanus tintinnabulum*, 373  
*Megabalanus volcano*, 373
- Megastraea undosa, 273
- meiofauna, 50
- Melanogrammus aeglefinus, 105
- Melarhaphes neritoides, 15–16
- Membranipora membranacea, 50, 76, 97, 109
- Mercenaria mercenaria, 145, 151
- Mesocentrotus franciscanus, 266–7
- mesoscale processes, 2, 8, 14, 23–4, 29, 491–2
- Messinian crisis, 190
- metabolic depression, 78, 377
- Metallogorgia, 479
- metapopulations, 116
- Metridium senile, 52
- Mexacanthina lugubris, 243–4
- Meyenaster gelatinosus, 317, 319
- Mid Atlantic Bight, 129–30, 132, 134, 147
- migration load, 240–1
- Mingan Archipelago, 103–4, 111, 113–14
- Modiolus modiolus, 49–50, 111
- Molgula manhattensis, 282
- Monodonta labio, 372–3
- Monomorium floricola, 440
- monsoon, 361, 366–8, 372–3, 375–81, 493–4, 497
- Monterey Bay, 241–4, 478
- Monterey Deep-Sea Fan, 274
- Morula, 374
- MPA. *See* Marine Protected Areas
- mucopolysaccharine matrix, 451
- mucus, 26, 51, 377, 449–50, 458–9, 462–3, 481
- mud prawn. *See* Upogebia africana
- mud shrimp. *See* mud prawn
- mud skipper fish, 436
- mud snail. *See* Ilyanassa obsoleta
- mudflat. *See* intertidal, muddy
- Munidopsis crassa, 478
- mussel  
 bathymodiolid. *See* Bathymodiolid  
 bed, 50, 70–1, 108–9, 111, 146, 164, 169–71, 173, 177–9, 217, 219, 246, 272, 314, 345, 348, 407, 478  
 byssal thread, 73, 78, 281
- mutualism, 51, 440–1
- Mya, 147, 149  
*Mya arenaria*, 75, 145–7, 158
- mysid, 202, 342
- Mytilaster minimus, 217, 219
- Mytilopsis, 380
- Mytilus  
*Mytilus californianus*, 246, 248, 250, 254  
*Mytilus chilensis*, 169, 174  
*Mytilus edulis*, 50, 64–8, 73, 78, 166–70, 174  
*Mytilus edulis platensis*, 174, 177  
*Mytilus galloprovincialis*, 12, 340, 346, 349–56, 395  
*Mytilus trossulus*, 280
- Nacella, 171
- Nacella magellanica, 169, 172, 174
- Nantucket Shoals, 130
- NAO. *See* North Atlantic Oscillation
- Narella, 477
- Navicula, 172
- nematode, 55, 202, 478
- nemertean, 150, 174
- neobiota, 214
- Neohelice granulata, 174
- neroids, 169
- Nereis, 149–50
- Nerita atramentosa, 396, 401, 461
- Nerita yoldii, 377, 381
- Newfoundland, 61, 64–5, 93, 95, 100, 103, 108–9, 111–14, 128–35, 146, 148, 151, 154
- next-generation sequencing, 283, 453, 465, 498
- Nipponacmea, 370, 372–3
- nitrogen enrichment, 424
- Nodilittorina exigua, 372
- Nodilittorina pyramidalis, 372
- Nodilittorina radiata, 372
- non-indigenous species, 2, 24–6, 55, 75, 108, 151, 171, 176–7, 196–9, 214–36, 321–2, 380, 407, 496, 499
- non-native species. *See* non-indigenous species
- North Africa, 23, 28–9, 215
- North Atlantic abyssal province, 475
- North Atlantic Oscillation, 12, 131, 494
- North Equatorial Current, 366
- North Pacific Current, 262, 269, 279
- North Pacific Gyre, 274
- North Pacific Gyre Oscillation, 262
- North Sea, 9, 12, 24, 47
- Northern East Pacific Rise, 476
- Nothobalanus flosculus, 313
- Notoacmea schrenki, 372
- Notobalanus flosculus, 169
- Notochthamalus scabrosus, 169, 314
- Nova Scotia, 64–6, 90–8, 100–2, 108, 111–12, 114–15, 134–5, 144, 152
- Nucella canaliculata, 248
- Nucella emarginata, 462
- Nucella lamellosa, 463
- Nucella lapillus, 17, 24, 64–6, 73–4
- Nucella ostrina, 247
- nutrient cycling, 263
- nutrient loading, 169, 203
- nutrient supply, 436–7
- Obelia dichotoma, 280
- Obelia geniculata, 50
- ocean acidification, 62, 75, 77, 246, 250, 254, 280, 283, 422, 493, 496
- ocean warming, 56–7, 77, 102, 115, 154, 191, 200, 203, 214–31, 420–1, 424, 497
- octocoral, 477, 479
- octocoral garden, 481
- Octopus tehuelchus, 173–4
- Octopus vulgaris, 339
- Oecophylla smaragdina, 441
- Ophiocreas oedipus, 479
- Oregonian Province, 264
- Osilinus lineatus. *See* Phorcus lineatus
- Ostrea cucullata. *See* Saccostrea cucullata
- Ostrea edulis, 28
- Ostreopsis siamensis, 423
- Otaria flavescens, 319
- overfishing, 55–7, 75–6, 102, 104, 116, 214–31, 379, 382, 418, 422–3, 497–8
- Oxylebius pictus, 269
- Oxysteles, 340
- oyster, 24–5, 28, 90, 108, 110–11, 134, 149, 151, 177, 179, 202, 282, 339, 364, 372–4, 378, 497
- oyster reef, 111, 149, 151
- Pacific Antarctic Ridge, 476
- Pacific Decadal Oscillation, 262, 273–4, 494
- Pacific Ocean  
 east, 144, 237, 307  
 north-east, 77, 147, 237  
 northern, 102, 262  
 north-western, 109  
 south-east, 238  
 western, 365

- Pacifigorgia, 477  
 Padina pavonica, 217  
 Pagrus auratus, 419  
 Pagurus longicarpus, 65  
 PAHs. *See* polycyclic aromatic hydrocarbons  
 Paine, 62, 79, 246, 249–50, 283, 314  
 Paita peninsula, 312  
 Palaemon macrodactylus, 178  
 Palaemon serratus, 51  
 Palaeo-Kuroshio Current, 364  
 Palaeo-Tsushima Current, 364  
 Palau trenches, 475  
 Palinuridae, 266  
 Palinurus elephas, 50  
 Palisada perforata, 217  
 Palmaria palmata, 17, 66  
 Pamamoeba invadens, 100  
 Pandalus borealis, 104  
 Panulirus interruptus, 266  
 Parabunodactylus imperfecta, 174  
 Paracentrotus lividus, 28, 53, 55, 197, 225, 493  
 paradox of the plankton, 465, 481  
 Paragorgia arborea, 477, 479, 481  
 Paragorgiidae, 479  
 Paramuricea biscaya, 481  
 Paramuricea clavata, 202  
 Parantipathes, 481  
 parasite–host interactions, 318–19  
 parasitism, 19, 349, 479–81  
 Paratrechina, 440  
 Parechinus angulosus, 340  
 Pareuthria plumbea, 173  
 particulate organic carbon, 51, 274, 475  
 particulate organic matter, 80, 197  
 Parvulastra exigua, 399  
 Parvulastraea exigua, 461  
 Patagonia, 164–80  
 Patagonotothen cornucola, 173–4  
 Patella  
   *Patella aspera*, 11, 16  
   *Patella caerulea*, 197, 227  
   *Patella candei*, 11  
   *Patella depressa*, 18–20, 24, 146  
   *Patella ferruginea*, 18  
   *Patella pellucida*, 15  
   *Patella piperata*, 11  
   *Patella rustica*, 11–12, 23  
   *Patella ulyssiponensis*, 10, 17, 19, 26  
   *Patella vulgata*, 13, 16–20, 23, 26, 462  
 Patellioida pygmea, 372  
 pathogen, 100, 102, 200, 281  
 PCBs. *See* polychlorinated biphenyls  
 Pearl River, 361, 367–8, 373  
 pelagic larval duration, 242, 253  
 Pelagophycus porra, 276  
 Pelvetia canaliculata, 10, 13–15  
 Penobscot Bay, 65, 69–70  
 peracarid, 169  
 Perforatus perforatus, 12  
 Periclimenes sagittifer, 51  
 periphyton, 313, 315, 458  
 periwinkle, 344  
 Perkinsus marinus, 202  
 Perna canaliculus, 395  
 Perna perna, 340, 346, 348–9, 359  
 Peru–Chile hadal province, 475  
 Perumytilus, 314  
 Perumytilus purpuratus, 166–71, 173–4, 178, 309, 317  
 Peruvian Province, 311–13  
 Petalonia fascia, 172  
 phaeophyceae, 178  
 phase shift. *See* regime shift  
 phenology, 200, 271  
 phenotypic plasticity, 73, 78, 436  
 phlorotannins, 276  
 Phoca vitulina, 50  
 Phorcus lineatus, 12, 146  
 photosynthesis, 49–50, 77, 96, 111, 135, 225, 276, 340, 460  
 Phragmatopoma moerchi, 319  
 Phragmites australis, 151  
 Phyllospora comosa, 396  
 phylogeography, 9–14, 64–5, 240, 270–301, 311, 346–7, 368–71, 474–7  
 phytoplankton, 26, 253, 262, 270–2, 279, 336, 449, 455, 465  
 phytoplankton bloom, 12, 250, 253, 266, 270, 274, 336  
 piddock, 170  
 Pinguipes chilensis, 317, 319  
 pink sea fan. *See* Eunicella verrucosa  
 Pisaster ochraceus, 246, 248–50, 339  
 Planaxis sulcatus, 373  
 planctomycetes, 449  
 Plate Estuary, 179  
 Plaxiphora aurata, 171  
 Pleurobranchaea, 178  
 Point Conception, 250, 262, 269–70  
 Pollicipes pollicipes, 10  
 pollution, 55, 169, 178, 203, 230, 281, 320, 379, 382, 419, 422  
 polychaete, 10, 12, 50, 145–7, 149, 151, 166, 174, 216, 317, 343, 477  
   onuphid, 139, 169  
   spionid, 74, 147, 169, 178  
 polychlorinated biphenyls, 281. *See* polycyclic aromatic hydrocarbons  
 Polynoidae, 479  
 polysaccharides, 448, 457  
 Polysiphonia, 166, 169, 375  
   *Polysiphonia morrowii*, 177–8  
 Porcupine Abyssal Plain, 478  
 Porifera, 17, 28, 54, 56, 110, 166, 172, 190, 200, 274, 277, 282, 342, 372, 432, 440, 479, 481  
 Porphyra, 16, 170, 374–5, 400, 462  
 Posidonia oceanica, 198  
 post-settlement mortality, 107, 347, 378  
 post-settlement survival, 19, 103, 240, 273  
 Prasiola, 16, 462  
 prawn, 51, 104, 145, 147, 317, 343, 436, 478–9  
 predator–prey interaction, 71–5, 239, 244, 316, 329  
 preventative management, 204  
 Prey Stress Model, 247  
 primary producers. *See* primary production  
 primary production, 336  
 Primnoa resedaeiformis, 481  
 Primnoidae, 479  
 Primnois, 477  
 Prince William Sound, 260  
 prokaryotes, 449, 453  
 prolonged desiccation events, 221  
 propagule pressure, 21, 28  
 propagule supply. *See* propagule pressure  
 Proteobacteria, 449, 460  
 proteomics, 453, 465  
 protists, 449  
 protozoan, 202, 336, 457  
 Psammochinus miliaris, 28, 52, 54, 57  
 Pseudoctomeris sulcata, 373  
 Pterogophora, 265  
 Pterois miles, 223, 230  
 Pterois volitans, 223  
 Pterygophora californica, 265  
 Puget Sound, 269, 282  
 Punta Eugenia, 240, 243–5, 269  
 Punta Lengua de Vaca, 309  
 pycnogonids, 478



- Pycnopodia helianthoides, 266, 279  
 Pyromaia tuberculata, 178  
 Pyropia leucosticta, 169, 172  
 Pyura, 493  
 Pyura chilensis, 319  
 Pyura praeputialis, 321  
  
 queen scallop. *See* *Aequipecten opercularis*  
  
*Ralfsia*, 372, 374  
     *Ralfsia verrucosa*, 396  
 rays, 135, 139, 144–5, 148, 150, 154  
 reclamation, 368, 379–80, 382  
 recreation, 55, 408  
 Red Sea, 190, 196, 216–18, 221, 231, 497  
 reflectance spectrometry, 453, 455–6  
 refugia, 19, 28, 64, 128, 134–5, 139–48, 150–4, 221, 245, 268–9, 273, 283, 314, 364  
 regime shift, 54–5, 57, 91, 97, 190–205, 223, 226, 229, 318, 342, 425, 436, 498  
 remotely operated vehicles, 1, 114, 498  
 reserve, 24, 222–3, 270, 282, 317, 391, 408  
 resilience, 13, 29, 79–80, 191, 196, 198, 200, 203–5, 230, 254, 432, 442–3  
 resistance, 460  
 Rex, 481  
 Rhinoptera bonasus, 139–40  
*Rhizophora*, 439–40  
*Rhizophora mangle*, 437–8, 440  
*Rhizophora mucronata*, 433, 436, 446  
*Rhizophora stylosa*, 437  
*Rhodoptilum plumosum*, 276  
*Ridgea*, 475  
*Riftia*, 475  
*Riftia pachyptila*, 476  
*Rimicaris excoculata*, 475  
 rock armouring. *See* artificial structure  
 rock cook wrasse. *See* *Centrolabrus exoletus*  
 rock crab. *See* *Cancer irroratus*  
 rock lobster. *See* *Jasus lalandii*  
 ROV. *See* remotely operated vehicle  
  
*Sabellaria alveolata*, 10, 13, 24  
*Saccharina latissima*, 13–15, 17, 50, 54, 100, 103  
*Saccorhiza polyschides*, 10, 13, 29, 50  
*Saccostrea*, 378  
     *Saccostrea cucullata*, 372–3  
     *Saccostrea echinata*, 372  
     *Saccostrea mordax*, 373  
*Sagartia elegans*, 52  
*Sagmariasus verreauxi*, 419–20  
 Saint Lawrence Estuary, 104  
 salinisation, 434  
 Salish Sea, 267, 276–8, 282  
 salt marsh, 64, 134, 370, 435, 439, 441  
 San Diegoan Province, 264  
 San Francisco Bay, 276, 282  
 San José Gulf, 165  
 San Juan Archipelago, 267  
 sandflats. *See* intertidal, sandy  
 sandworms, 149  
 sandy beach. *See* intertidal, sandy  
*Sargassum*, 9, 218, 374, 396, 417  
     *Sargassum muticum*, 24–41, 277, 282  
     *Sargassum thunbergii*, 372  
*Sarpa salpa*, 10, 21, 199, 223, 226  
*Sarracenia purpurea*, 193  
 scale worm, 479  
 scanning electron microscopy, 452–3  
 scarid, 199  
*Scartichthys viridis*, 315–16, 328  
 scavengers, 336  
*Schizymenia dubyi*, 171, 176  
*Scleractinia*, 200, 342, 477, 479  
 scleractinian. *See* *Scleractinia*  
*Scorpaena*, 51  
*Scurria*, 314  
     *Scurria araucana*, 316  
     *Scurria viridula*, 313–14  
     *Scurria zebrina*, 313–14  
*Scutellastra argenvillei*, 336, 348  
*Scutellastra cochlear*, 336  
*Scutellastra granularis*, 348  
*Scyliorhinus canicula*, 50  
*Scyliorhinus stellaris*, 50  
 sea cucumber, 272  
 sea defence. *See* artificial structure  
 sea fan anemone. *See* *Amphianthus dohrnii*  
 sea ice, 93–7, 116, 154  
 sea-level rise, 179, 226–8, 286, 442  
 sea lion, 318–19  
 Sea of Japan, 364–5  
 Sea of Marmara, 190  
 sea otter, 100, 102, 251, 263, 266–7, 281, 319  
     predation, 251  
 sea pen meadow, 112  
 sea scorpion, 51  
 sea slug, 50  
 sea squirts. *See* tunicate  
 sea star. *See* starfish  
 sea star wasting disease, 275, 279, *See* sea star-associated densovirus.  
     *See* sea star wasting disease  
 sea surface temperature, 64, 200, 204, 221, 226, 253, 262, 273, 393, 397  
 seagrass bed, 139, 144, 153  
 seal, 218, 318  
 seamount, 474–5, 477  
 seawall. *See* artificial structure  
 secondary production, 27, 63, 80, 150, 491  
 sedimentation, 406–8, 418–19, 423, 436–7, 481, 493, 497  
 seep communities, 475  
 selection, 73, 227, 241, 244, 347  
 SEM. *See* scanning electron microscopy  
*Semibalanus balanoides*, 9, 11–12, 15–16, 18, 24, 64–8, 72, 463  
*Semicossyphus darwinii*, 319  
*Semicossyphus pulcher*, 266, 317  
*Semimytilus algosus*, 178, 313, 349  
*Septifer virgatus*, 372, 374  
 sequestration, 55, 224–5, 441  
 serpulids, 200  
*Serpulorbis imbricatus*, 372  
 settlement  
     behaviour, 8, 23  
     cues, 454  
     gregarious, 9  
     severe winter, 146–7  
 shading, 13, 20, 47, 49, 110, 176, 406, 435, 449, 460  
 shell thickness, 73, 152, 254  
*Shinkaia*, 479  
 shrimp. *See* prawn  
 shrimps  
     caridean, 475  
 Siberian anticyclone, 367  
*Sicyases sanguineus*, 317  
 siganid, 197, 199, 222–4  
*Siganus fuscescens*, 421  
*Siganus luridus*, 197–9, 222, 225, 421  
*Siganus rivulatus*, 197–9, 216, 222, 421  
*Simnia hiscocki*, 50  
 Siphonaria  
     *Siphonaria compressa*, 344  
     *Siphonaria denticulata*, 399  
     *Siphonaria japonica*, 370, 372, 377  
     *Siphonaria laciniata*, 373

- Siphonaria lessonii*, 166, 169, 171–2, 188
- Siphonaria pectinata*, 11
- size-selective harvesting, 18, 239, 243, 246, 251
- skates, 135, 139, 145, 148
- slipper limpet. See *Crepidula fornicata*
- snakelocks anemone. See *Anemonia viridis*
- snowcrab. See *Chionectes opilio*
- soft coral, 110, 342, 479
- Sonneratia alba*, 433
- South Atlantic bathyal province, 475
- South China Sea, 360, 363–4, 366
- South Pacific anticyclone, 313
- south-eastern Florida, 122
- Southern California Bight, 266, 270–1
- Southern California Countercurrent, 262, 271
- Southern East Pacific Rise, 476
- Southland Current, 393, 416
- sparid, 199, 226
- Sparisoma cretense*, 197, 199
- Spartina*, 435, 439
- species range
- boreal, 12–13, 29, 93
  - contraction, 10, 12–13, 78, 229, 244, 421, 499
  - expansion, 10, 12, 24, 26, 57, 65, 77, 102, 108, 115, 147, 152–3, 176–7, 190, 197, 239–41, 243–6, 273, 282, 310, 322, 342, 348–9, 419–20, 423, 499
  - leading edge, 11–12, 24, 29
  - lusitanian, 11–13, 23–4, 29
  - trailing edge, 11–12, 29, 214, 225
- species richness, 170, 223, 237, 312, 334, 339, 342–4, 397, 438, 481
- spectroscopy, 448, 465
- spider crab, 51
- spiny lobster, 57, 266, 318, 418, 420
- Spio setosa*, 147
- Spondylus*, 372
- sponge. See *Porifera*
- Sporochnus pedunculatus*, 178
- squat lobster, 50–1, 478–9
- SST. See sea surface temperature
- stability-time hypothesis, 481
- stable isotope analysis, 27, 51, 223, 270, 278, 343, 345, 348, 448, 482
- starfish, 4, 50, 64, 66, 98, 111, 113, 116, 173–4, 217, 248–51, 264, 266, 275, 279, 316–17, 339, 374, 399, 403, 461
- Steblospio benedicti*, 147
- Stephanocyathus spiniger*, 477
- Stephanocystis osmundacea*, 276
- Stephenson and Stephenson, 8, 10, 16, 216, 335, 493
- Steromphala umbilicalis*, 10, 26
- Stichaster striatus*, 317
- Stichopathes filiformis*, 477
- Stichopathes variabilis*, 477
- stoloniferan, 200
- stony coral, 50
- storm surge, 179
- Strait of Georgia, 269
- Strait of Gibraltar, 7, 10, 190
- Stramonita haemastoma*, 215, 217, 219, 225
- stress
- desiccation, 9, 19–20, 26, 170, 172–3, 221, 227, 378, 434–6, 458, 460, 494
  - dissolved oxygen, 20
  - gradient, 248, 432, 440, 442–3
  - insolation, 458, 460, 463
  - light, 276
  - pH, 20, 77, 229, 280, 494
  - salinity, 20, 103, 135
  - thermal, 9, 20, 72, 78, 152, 202, 245, 247–51, 280, 375–7, 381, 458, 460, 463
- stress gradient hypothesis, 432, 442
- Strongylocentrotidae, 266–7
- Strongylocentrotus droebachiensis*, 54–5, 57, 91, 266, 268
- Strongylocentrotus franciscanus*, 278
- Strongylocentrotus purpuratus*, 266, 280
- Styela clava*, 178, 282
- sub-Antarctic, 165
- sub-Arctic, 64
- sublittoral fringe, 66
- submarine canyons, 474
- subtidal
- circalittoral, 48, 50
  - rocky, 47, 96, 98, 100–2, 109–11, 264, 268, 270–1, 275, 282, 319
- subtropical, 165, 190, 334, 336, 346, 348, 488
- succession, 16, 26, 47, 51–6, 70–1, 112, 191, 272, 310, 314–16, 431, 433
- Suez Canal, 3, 190, 196, 205, 214, 217–18, 223, 228, 497
- sunflower star. See *Pycnopodia helianthoides*
- supply-side ecology, 347, 381
- supralittoral fringe, 220, 336
- surf zone, 336–7
- surfperch, 269
- suspension feeding, 27, 29, 48, 51, 109–10, 147, 218, 263, 270, 274, 277, 343
- syllids, 169
- symbiosis, 51, 431, 474, 479–81
- Syringodium filiforme*, 135
- Taiwan Strait, 366–7
- Taiwan Warm Current, 366
- Tasman Sea, 393, 416, 420
- Tawera, 174
- Taylor, 477
- Tectarius granularis*, 372
- Tectarius striatus*, 11
- Tectarius vilis*, 372
- Tegula, 319
- Tegula atra*, 315
  - Tegula funebris*, 244
  - Tegula patagonica*, 171–2
- Tenguella, 374
- Tesseropora rosea*, 396–7
- Testudinalia testudinalis*, 12, 15, 66, 78
- Tethya aurantium*, 372
- Tetraclita*, 376, 378
- Tetraclita japonica*, 372–4
  - Tetraclita japonica formosana*, 373
  - Tetraclita japonica japonica*, 369
  - Tetraclita kuroshioensis*, 369, 373
  - Tetraclita rubescens*, 240–4
  - Tetraclita squamosa*, 369, 372, 374
- Tetrapygyus niger*, 313–14, 317, 319
- Tevnia jerichonana*, 476
- thaid whelk, 9
- Thais clavigera*, 372
- Thalassia testudinum*, 135, 144, 153
- Thalassomembracis*, 479
- the Cordilleran, 268–9
- thermal anomaly, 200–2, 319
- Thermarces cerberus*, 478
- thermocline, 55, 312
- thermoregulation, 377
- Three Gorges Dam, 367, 380
- tidal elevation, 8, 13–19, 61, 72, 449, 488, 492
- Tonicia*, 314

- top-down processes, 26, 63, 66, 69–70, 76, 100, 105, 237, 246–8, 250, 254, 264, 266–7, 282–3, 314, 319, 342, 381–2, 419, 424, 448–9, 463–4, 491, 493
- topshell, 172, 216, 374
- tourism, 55, 408
- Toxoplasma gondii*, 282
- trait mediated indirect interactions, 63, 74, 79–80
- trans-Arctic interchange, 9, 62, 64, 268
- transcriptomics, 453, 465
- trematode, 28, 65, 318, 349
- tripterygoids, 222
- Tritonia nilsodhneri*, 50
- trochid, 9–12, 21, 28, 460
- trophic cascade, 73–5, 80, 100, 104, 145, 251, 264, 266, 283, 418, 422, 463
- Trophon geversianus*, 173, 185
- tropicalisation, 415, 420–2, 425
- tube worm, 51, 476
- tunicate, 52, 109–11, 282, 493  
colonial tunicate, 49
- turban snail, 315, 340
- Turbo cidaris*, 340
- Turbo sarmaticus*, 340
- typhoon, 367–8, 377
- Ulothrix*, 16, 462
- Ulva*, 72, 78, 149, 166, 169, 172, 217, 315, 373–6, 396, 462
- Ulva rigida*, 172
- Ulvaria, 281
- Undaria pinnatifida*, 24–5, 55, 172, 176, 282
- Upogebia africana*, 343, 436
- urbanisation, 497
- urchin  
barren, 53, 57, 97, 100–3, 109–10, 112–13, 116, 264, 267, 318, 414–18, 420, 422–3, 425
- fishery, 102
- grazing, 53–4, 99, 103, 109–11, 113, 226, 263, 266, 422, 493
- harvesting, 103
- Urophycis chuss*, 116
- UV exposure, 276
- vector, 63, 75–7, 108, 176, 178, 196, 223
- vermetid reef, 214–16, 218–19, 227–8
- Vermetus triquetrus*, 214, 221
- Verrucaria*, 372
- Victogorgia josephinae*, 479
- viral nervous necrosis, 202
- vitellogenin gene, 199
- Volcano Trench, 475
- VTG1*. See vitellogenin gene
- Wadden Sea, 146–7
- wakame. See *Undaria pinnatifida*
- wave action, 459
- wave energy, 131, 260, 271–96
- wave surge, 49, 69, 71
- west wind drift, 312
- Western Maine Boundary Current, 93
- white hake, 105
- withering syndrome, 250
- World Harbour Project, 499
- wrasse, 50–3, 56–7
- Xenostrobus*, 372, 380
- Xiphophora chondrophylla*, 394
- Yalu River, 367
- Yangtze River, 366–7, 370–1, 380
- Yellow Sea, 360, 365
- Yellow Sea Warm Current, 366
- Zeus faber, 51
- zoantharians, 200
- zonation  
depth, 275–7
- latitudinal, 21–2, 417
- vertical, 8, 13, 15–17, 19–20, 48, 114, 116, 216, 247, 250, 276, 339, 371–2, 374, 381, 401, 458–9, 464, 493
- Zostera*, 128, 135, 147, 154, 343–4  
*Zostera capensis*, 343–4  
*Zostera marina*, 134–5, 137, 140, 144, 146–7, 153–4, 157
- Zostera* Experimental Network, 499