

## Appendix 4. Glossaries

### General glossary

Glossary of scientific marine biological terms used in the Biology and Sensitivity Key Information Sub-programme. Compiled from McLeod (1996) with additions from Hiscock (1998) and various other references.

**abiotic** Devoid of life.

**aboral** Opposite the end/side on which the mouth is located (Kozloff, 1996).

**abundance scale** A scale describing the relative abundance of organisms (as numbers of individuals per unit area or as % cover), with groupings in several broad categories. In the case of the MNCR's semi-logarithmic 'SACFOR' scale, the units are Superabundant; Abundant; Common; Frequent; Occasional; Rare (scale from Connor & Hiscock, 1996).

**accretion** Build up or accumulation of sediment.

**activity (maritime)** An anthropogenic operation or activity which occurs in the marine or coastal environment (Cooke & McMath, 2000).

**aggregation** Organisms (usually referring to of the same species) living closely together, but not physically connected (cf. 'colony').

**algal mat** A dense mass of green or other algae (e.g. *Enteromorpha* spp., *Ulva* spp.) which blankets the substratum in a littoral or shallow-water environment, often in areas of freshwater influence or where eutrophication occurs.

**alien species** A non-established introduced species (q.v.), which is incapable of establishing self-sustaining or self-propagating populations in the new area without human interference (cf. 'introduced species'; 'non-native').

**anadromous (of fish)** Upward-running: spending part of their life in the sea and migrating up rivers in order to breed (e.g. salmon) (cf. 'catadromous').

**anaerobic** An environment in which the partial pressure of oxygen is significantly below normal atmospheric levels; deoxygenated (Lincoln *et al.*, 1998).

**anisogamous** Having flagellate gametes of different size, shape or behaviour (from Bold, 1977 and Lincoln *et al.*, 1998).

**annulated** Where the external surface is divided into a chain of rings or 'annuli' by furrows giving the appearance of segments (Barnes *et al.*, 1993).

**anoxic** Devoid of oxygen.

**anthropogenic** Produced by human activity.

**aquaculture** The cultivation of aquatic organisms by human effort for commercial purposes. For the cultivation of marine organisms in seawater, the term 'mariculture' is also used. (Based on Baretta-Bekker *et al.*, 1992).

**arborescent / arbuscular** Having the shape or characteristics of a tree.

**arctic** Referring to a biogeographical region centred north of the British Isles and influencing the extreme north of the British Isles.

**articulate** Jointed, arthrous (Holmes, 1979).

**assessment 1)** The evaluation of marine natural heritage importance through an orderly process of gathering information about biotopes and species in an area and comparing their attributes by a standard protocol (as in 'conservation assessment'). **2)** The evaluation of the likely impact of a development on the environment (as in 'Environmental Impact Assessment').

**association** A term used by botanists to refer to an assemblage of plants with a definite floristic composition, considered by many workers to be synonymous or very similar to the zoological concept of 'community' (from Hiscock & Connor, 1991).

**attribute** A characteristic of a habitat, biotope, community or population of a species which most economically provides an indication of the condition of the interest feature to which it applies. (CSMR).

**autecology** The ecology of individual organisms or species (Lincoln *et al.*, 1998) (cf. 'synecology').

**autotrophic** Self-feeding, producing organic matter through photosynthesis (Prescott, 1969).

**azoic** Devoid of animal life.

**bathyal** Pertaining to the sea floor between 200 m and 4000 m (Lincoln & Boxshall, 1987).

**beak** Small, beak like part of shell valve along or above the hinge, represents earliest part of shell and continues to form the umbo. May be used as synonym for umbo (Stachowitsch, 1992).

- bedrock** Any stable hard substratum, not separated into boulders or smaller sediment units.
- benthos** Those organisms attached to, or living on, in or near, the seabed, including that part which is exposed by tides as the littoral zone (based on Lincoln & Boxshall, 1987).
- bioaccumulation** The ability of organisms to retain and concentrate substances from their environment. The gradual build-up of substances in living tissue; usually used in referring to toxic substances; may result from direct absorption from the environment or through the food-chain. Cf. 'biomagnification'.
- biocoenosis (biocenosis)** A term used in continental Europe which can be considered roughly equivalent to 'community' as suggested by Cain (1939), i.e. "a term of convenience which is employed to designate sociological units to every degree from the simplest one-layered aggregation to the most complex phytocoenosis" (Hiscock & Connor, 1991).
- biodegradation** Breakdown or decomposition by bacteria or other biological means.
- biodiversity (biological diversity)** "The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." (UNCED, 1992).
- biogeography** The branch of biology concerned with the geographical distribution of plants and animals, and the factors influencing that distribution.
- biomagnification. (bioconcentration)** Increasing concentration of a substance in successive trophic levels of a food chain (cf. 'bioaccumulation').
- biomass** The total quantity of living organisms in a given area, expressed in terms of living or dry weight or energy value per unit area.
- biome** A major ecological community, extending over a large area and usually characterised by a dominant vegetation (from Makins, 1991).
- biota** The plant and animal life of a particular site, area, or period.
- biotope** 1) The physical 'habitat' with its biological 'community'; a term which refers to the combination of physical environment (habitat) and its distinctive assemblage of conspicuous species. MNCR uses the biotope concept to enable description and comparison. 2) The smallest geographical unit of the biosphere or of a habitat that can be delimited by convenient boundaries and is characterised by its biota (Lincoln *et al.*, 1998).
- biotope complex** Groups of biotopes with similar overall character (e.g. Seagrass beds, rockpools, dense fucoids) (Connor *et al.*, 1997a, b).
- bioturbation** The mixing of a sediment by the burrowing, feeding or other activity of living organisms (Lincoln *et al.*, 1998).
- bivalved** Characteristically a shell of two calcareous valves joined by a flexible ligament.
- boreal 1) biogeographical** Pertaining to cool or cold temperate regions of the northern hemisphere (Lincoln *et al.*, 1998). **2) Marine zoogeography** Ekman (1953) states that the centre of the boreal region lies in the North Sea. It is bounded by the subarctic transitional zone to the north between Shetland, the Faroe Islands and Iceland and in the south-west of Britain by a transitional zone with the Mediterranean-Atlantic lusitanian region.
- boring** Makes an excavation (through physical or chemical action) in which to live.
- brackish** Referring to mixtures of fresh and seawater. Usually regarded as between 0.5 ‰ and 30 ‰ salinity (q.v.) (based on McLusky, 1993).
- budding** A form of asexual multiplication in which a new individual begins life as an outgrowth from the body of the parent. It may then separate to lead an independent existence or remain connected or otherwise associated to form a colonial organism (Barnes *et al.*, 1993).
- bullate (saccate)** Balloon or sac-like (Prescott, 1969).
- calcareous** Containing calcium carbonate; chalky. (Of organisms): a species which accumulates calcium carbonate in its tissues.
- calceoli** Club-shaped sensory projections on antennules and antennae, in some gammaridean amphipods; not found outside Gammaridea.
- capitate** Enlarged or swollen at the apex, with a 'head', clubbed. (Prescott, 1969).
- carnivore** A predator which feeds on animals.
- catadromous** (of fish) Downward-running: spending most of their life in rivers and migrating downstream to the sea in order to breed (e.g. eels) (cf. 'anadromous').
- characteristic** (species) Special to or especially abundant in a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified (based on Hiscock & Connor, 1991).

- chaetae** (or setae) Chitinous bristles found in oligochaete annelids and especially in polychaete annelids.
- chondrophore** The pit or protection (of the shell hinge) to which the internal ligament is attached (Tebble, 1976).
- circalittoral** The subzone of the rocky sublittoral below that dominated by algae (the infralittoral), and dominated by animals. No lower limit is defined, but species composition changes below about 40m to 80m depth, depending on depth of the seasonal thermocline. This subzone can be subdivided into the upper circalittoral where foliose algae are present and the lower circalittoral where they are not (see Hiscock, 1985). The term is also used by Glémarec (1973) to refer to two étages of the sediment benthos below the infralittoral: a "coastal circalittoral category with a eurythermal environment of weak seasonal amplitude (less than 10°C) varying slowly" and a "circalittoral category of the open sea with a stenothermal environment". 1) lower The part of the circalittoral subzone on hard substrata below the maximum depth limit of foliose algae (based on Hiscock, 1985). 2) upper The part of the circalittoral subzone on hard substrata distinguished by the presence of scattered foliose algae amongst the dominating animals; its lower limit is the maximum limit of depth for foliose algae (based on Hiscock, 1985).
- classification 1) taxonomy** The placing of animals and plants in a series of increasingly specialised groups because of similarities in structure, origins etc., that indicate a common relationship (from Makins, 1991). **2) biotopes** The process of identifying distinctive and recurrent groupings of species with their associated habitat and describing them within a structured framework.
- clathrate** Latticed (Holmes, 1979).
- clonal** An assemblage of organisms derived by asexual or vegetative multiplication from a single original parent - generally assumed to be genetically identical (from Lincoln *et al.*, 1998).
- coastal zone** The space in which terrestrial environments influence marine (or lacustrine) environments and *vice versa*. The coastal zone is of variable width and may also change in time. Delimitation of zonal boundaries is not normally possible; more often such limits are marked by an environmental gradient or transition. At any one locality the coastal zone may be characterised according to physical, biological or cultural criteria, which need not, and rarely do, coincide (based on Carter, 1988).
- colonial** Descriptive of organisms produced asexually which remain associated with each other; in many animals, retaining tissue contact with other polyps or zooids as a result of incomplete budding (Barnes *et al.*, 1993).
- colonisation** The process of establishing populations of one or more species in an area or environment where the species involved were not present before (from Baretta-Bekker *et al.*, 1992).
- colony 1)** A group of organisms of the same species living connected together in a common mass (Fitter & Manuel, 1986.) (cf. 'aggregation'). **2)** A group of organisms connected by behavioural or sociological factors (e.g. seabird colony, seal colony).
- commensalism** Symbiosis (q.v.) in which one species derives benefit from a common food supply, whilst the other species is not adversely affected (Lincoln *et al.*, 1998).
- community** A group of organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups (from Mills, 1969; see Hiscock & Connor, 1991 for discussion).
- confidence** A feeling of reliance or certainty (Thompson, 1995).
- conservation (nature)** "The regulation of human use of the global ecosystem to sustain its diversity of content indefinitely" (Nature Conservancy Council, 1984).
- constancy 1)** The frequency of occurrence of a species in samples from the same community (based on Makins, 1991). **2)** The continued presence of a species or community at a particular location. (Cf. 'persistence', 'resilience', 'stability').
- contamination** "An increase of background concentration of a chemical or radionuclide" (from Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection - GESAMP, 1995).
- coralline** Relating to, or resembling, coral, especially any calcareous red alga impregnated with calcium carbonate.
- cosmopolitan** Of worldwide distribution (Brusca, 1980).
- critically endangered (IUCN Red List categories)** A taxon is Critically endangered when it is facing an extremely high risk of extinction in the wild in the immediate future (IUCN, 1994) (cf. 'Extinct', 'Endangered', 'Vulnerable').
- crustose** Forming or resembling a crust (Thompson, 1995).

- cryptic (cryptozoic) 1)** An animal which lives in hidden places, such as crevices, caves or beneath stones.
- 2)** An organism whose appearance or coloration makes it difficult to see or recognise.
- cylindrical** With straight sides and a circular section (Thompson, 1995).
- decomposers** Organisms which feed by breaking down dead organic matter (from Lincoln *et al.* 1998).
- demersal** Living at or near the bottom of a sea or lake, but having the capacity for active swimming (from Lincoln *et al.*, 1998).
- dendroid** Branching irregularly - similar to that of a root system (Prescott, 1969).
- dependency (conservation assessment)** The reliance (of a species, community or ecological process) on a particular location (for instance, a feeding, breeding, sheltering area or a migration corridor) or structure (for instance, a kelp forest, a sea grass bed, a maerl bed) for survival.
- deposit-feeders** Any organisms which feed on fragmented particulate organic matter in or on the substratum; detritivores (from Lincoln *et al.*, 1998).
- desiccation** Removal of water; the process of drying (Lincoln *et al.*, 1998).
- detritus** Fragmented particulate organic matter, derived from the decomposition of plant and animal remains.
- diel** Daily, pertaining to a 24 hour period (Lincoln *et al.*, 1998).
- digitate** Having parts arranged like fingers on a hand (Holmes, 1979).
- dimorphic** Occurring in two distinct forms (usually morphological forms) (Barnes *et al.*, 1993).
- direct development** Development without a larval stage (cf. indirect development) (Barnes *et al.*, 1993).
- disturbance** "A chemical or physical process caused by humans that may or may not lead to a response in a biological system within an organism or at the level of whole organisms or assemblages. Disturbance includes stresses". (from Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection - GESAMP, 1995).
- diversity** The state or quality of being different or varied (from Makins, 1991). In relation to species, the degree to which the total number of individual organisms in a given ecosystem, area, community or trophic level is divided evenly over different species, i.e. measure of heterogeneity. Species diversity can be expressed by diversity indices, most of which take account of both the number of species and number of individuals per species (Based on Baretta-Bekker *et al.*, 1992). Cf. 'evenness'; 'richness'.
- diversity (conservation assessment)** An assessment of the richness of different types in a location (which can be large or small) including the number of different biotopes and numbers of species. The number of species present in an example of a particular biotope.
- ecad** A plant or animal form produced in response to particular habitat factors, the characteristic adaptations not being heritable; a habitat form (from Lincoln *et al.*, 1998).
- ecology** The study of the inter-relationships between living organisms and their environment (from Lincoln *et al.*, 1998).
- Ecological Quality (EcoQ)** An expression of the structure and function of the ecological system taking into account natural physiographic, geographic and climatic factors as well as biological, physical and chemical conditions including those resulting from human activities (from a draft of the EC Ecological Quality of Water Directive).
- Ecological Quality Objective (EcoQO)** The desired level of the EcoQ relative to a reference level.
- ecosystem** A community of organisms and their physical environment interacting as an ecological unit (from Lincoln *et al.*, 1998). Usage can include reference to large units such as the North Sea down to much smaller units such as kelp holdfasts as "an ecosystem".
- ecotone** The zone of transition between two major ecological communities.
- endangered (IUCN Red List categories)** A taxon is considered Endangered when it is not Critically endangered (q.v.) but is facing a very high risk of extinction in the wild in the near future (International Union for the Conservation of Nature and Natural Resources 1994) (cf. 'Extinct', 'Critically endangered', 'Vulnerable').
- endemic** Referring to organisms that are confined to a particular area or geographical location (Prescott, 1969).
- environment** The complex of biotic climatic, edaphic and other conditions which comprise the immediate habitat of an organism; the physical, chemical and biological surroundings of an organism at any given time. (cf. 'habitat')(from Lincoln *et al.*, 1998).

- Environmental Assessment (EA)** Environmental Impact Assessment (EIA) A process of predicting and evaluating an action's impacts on the environment, from which the conclusions are used as a tool in decision-making. It aims to minimise environmental degradation by giving decision-makers better information about the consequences which development actions could have on the environment, although it cannot, in itself, achieve that protection (based on Pritchard, 1993). An Environmental Assessment can be used to produce an Environmental Statement (ES). Cf. 'Environmental Statement' 'Strategic Environmental Assessment'.
- Environmental Statement (ES)** A statement intended to provide all of the information needed to evaluate the likely environmental implications of a proposed development (adapted from Treweek, 1996). Cf. 'Environmental Assessment (EA)'.
- epibenthos** All organisms living on the surface of the seabed.
- epifauna** Animals living on the surface of the seabed.
- epilithic** Growing on the surface of rock.
- epiphytic** Growing on the surface of a living plant (but not parasitic upon it).
- epizoic** Growing or living on the exterior of a living animal (but not parasitic upon it).
- euhaline** Fully saline seawater >30 ‰ salinity.
- eulittoral** The main part of the littoral zone characterised by limpets, barnacles, mussels, fucoid algae (other than those characteristic of the littoral fringe), with red algae often abundant on the lower part. It lies above the main population of Laminariales. Zonation within the eulittoral is variable, with two to four (commonly three) belts often clearly discernible. 1) (lower) The lower belt of the eulittoral subzone, bordering the sublittoral fringe, and generally dominated by *Fucus serratus* and red algae. 2) (mid) The broad middle belt of the eulittoral subzone, usually characterised by limpets and barnacles or *Mytilus* and filamentous red algae in exposed situations, or dominated by fucoids, often with clumps of large mussels present, in shelter. 3) (upper) The narrow upper belt of the eulittoral subzone, often very variable in character. (from Hiscock, 1990).
- euryhaline** Of or relating to the capability of an organism to live in environments of variable salinity (from Charton & Tietjen, 1989).
- eurythermal** Of or relating to the capacity of some organisms to survive in a wide range of temperatures (from Charton & Tietjen, 1989).
- eutrophication** The over-enrichment of an aquatic environment with inorganic nutrients, especially nitrates and phosphates, often anthropogenic (e.g. sewage, fertiliser run-off), which may result in stimulation of growth of algae and bacteria, and can reduce the oxygen content of the water.
- exposed (wave exposure) 1)** Coasts which face the prevailing wind but which have a degree of shelter because of extensive shallow areas offshore, offshore obstructions, or a restricted (less than 90°) window to open water. These sites are not generally exposed to large waves or regular swell. **2)** Open coasts facing away from prevailing winds but with a long fetch, and where strong winds are frequent (from Hiscock, 1990).
- exposure** The degree of wave action on an open shore, governed by the distance of open sea over which the wind may blow to generate waves (the fetch) and the strength and incidence of the winds (Hawkins & Jones, 1992). Expressed as a descriptive scale for MNCR recording. Cf. 'exposed', 'extremely exposed', 'sheltered', 'ultra-sheltered', 'very exposed', 'very sheltered'.
- extent (conservation assessment)** In identifying sites for protection, preference will be given to sites with larger examples of highly rated or rarer biotopes. It is also necessary to consider the size of site required to ensure that the unit to be managed is 'viable'.
- extinct (IUCN Red List categories)** A taxon is 'extinct' when there is no reasonable doubt that the last individual has died (IUCN, 1994). The term can be applied on a local or national basis as well as world-wide and is also used to refer to situations where it no longer exists from a particular point of view (for instance: 'functionally extinct'; 'commercially extinct'). Cf. 'Critically endangered', 'Endangered', 'Vulnerable'.
- extremely exposed (wave exposure)** Open coastlines which face into the prevailing wind and receive both wind-driven waves and oceanic swell without any offshore obstructions such as islands or shallows for several thousand kilometres and where deep water is close to the shore (50 m depth contour within about 300 m) (from Hiscock, 1990).
- extremely sheltered (wave exposure)** Fully enclosed coasts with a fetch of no more than about 3 km (from Hiscock, 1990).

- facies (biological)** A geographical variant of a marine community, or a variant which includes a conspicuous or abundant species not present in the main community (based on Hiscock & Connor, 1991, from Cotton, 1912).
- factor (environmental)** A component of the physical, chemical, ecological or human environment that may be influenced by natural events or anthropogenic activity (Tyler-Walters & Jackson, 1999).
- fauna 1)** The animal life of a given region, habitat or geological period; **2)** A descriptive catalogue of the above (from Lincoln *et al.*, 1998).
- fecundity** The potential reproductive capacity of an organism or population, measured by the number of gametes (eggs) or asexual propagules.
- filiform** Filamentous slender and thread-like (Kozloff, 1996).
- filter-feeder** (see 'suspension-feeder').
- fission** Form of asexual multiplication involving division of the body into two or more parts each or all of which can grow into new individuals (Barnes *et al.*, 1993).
- flabellate** Shaped like a fan, fanlike (Brusca, 1980).
- flaccid** Soft, limp, flabby (Brusca, 1980).
- flora 1)** The plants or plant life of a particular region, habitat or geological period. **2)** A descriptive catalogue of the above. (from Lincoln *et al.*, 1998).
- foliose** Bearing leaves or leaf-like structures; having the appearance of a leaf.
- fragility (conservation assessment)** The degree of sensitivity of habitats, communities and species to environmental change (Ratcliffe, 1977) (cf. sensitivity).
- funnel shaped** In the shape of a funnel.
- gametophyte** The haploid sexual phase of a plant which exhibits an alternation of generations from which gametes are produced by mitosis. (Lincoln *et al.*, 1998).
- globose** Spherical / ovoid / globular (Brusca, 1980).
- gonochoristic** Having separate sexes (cf. hermaphroditic) (Barnes *et al.*, 1993).
- grazers 1)** Animals which rasp benthic algae (or sessile animals, such as bryozoan crusts) from the substratum, or **2)** animals which ingest phytoplankton from the water column by suspension-feeding (q.v.).
- gregarious** Living in groups or communities, growing in clusters.
- growth form** The physical appearance and structure of an organism (cf. life form).
- habitat** The place in which a plant or animal lives. It is defined for the marine environment according to geographical location, physiographic features and the physical and chemical environment (including salinity, wave exposure, strength of tidal streams, geology, biological zone, substratum, 'features' (e.g. crevices, overhangs, rockpools) and 'modifiers' (e.g. sand-scour, wave-surge, substratum mobility). (Cf. 'environment').
- habitat complex** Major divisions of the environment based on physiographic conditions, (such as exposure and substratum) which represent major differences in biological character (e.g. exposed littoral rock, infralittoral muddy sands). They are equivalent to selection units for intertidal Sites of Special Scientific Interest (Connor *et al.*, 1997a, b).
- Habitats Directive** The abbreviated term for *Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora* (Commission of the European Communities 1992). Known until about autumn 1994 informally as the "Habitats and Species Directive".
- haline** Another term for saline (q.v.).
- halocline** A horizontal boundary layer in the water-column, at which salinity changes sharply with depth.
- hapteron (pl. haptera)** Root like structure of macroalgae holdfasts.
- heavy metal** A generic term for a range of metals with a moderate to high atomic weight, for example cadmium, mercury, lead. Although many are essential for life in trace quantities, in elevated concentrations most are toxic and bioaccumulate, and so are important pollutants.
- herbivores** Organisms which feed on plants, including phytoplankton.
- hermaphroditic** Capable of producing both ova and spermatozoa either at the same time (permanent) or sequentially (cf. protandry, protogyny, gonochoristic) (Barnes *et al.*, 1993).
- holeuryhaline** A term used for organisms that freely inhabit fresh water, seawater and brackish water, or which establish populations in all these environments (from Lincoln *et al.*, 1998).

- holdfast** An attachment structure that anchors macroalgae to the substratum, which resembles a collection of roots (**hapteron pl. haptera**) but has no nutrient gathering role.
- holoplankton** Plankton with a completely pelagic life cycle (cf. meroplankton) (from Baretta-Bekker *et al.*, 1992).
- host** Any organism that provides food or shelter for another organism, e.g. the definitive host of a parasite (for mature or developmental stages), or a symbiont (commensal, mutualist or inquiline) (adapted from Lincoln *et al.*, 1998).
- hydrocarbons** Organic compounds containing mainly hydrogen and carbon; the basic constituents of fossil fuels.
- importance** In the context of marine natural heritage: species or biotopes which are rare or very restricted in their distribution; species or biotopes that are in decline or have been; species or biotopes where a country has a high proportion of the regional or world population or extent; species that are keystone in a biotope by providing a habitat for other species; biotopes with a particularly high species richness; locations or biotopes that are particularly good or extensive representatives of their type. Species will also be 'important' if they are listed for protection on statutes, directives and conventions.
- imposex** An abnormality of the reproductive system in female gastropod molluscs, by which male characteristics are superimposed onto female individuals (Smith, 1980), resulting in sterility or, in extreme cases, death. This may be caused by hormonal change in response to pollution from organotin antifoulants, even at low concentrations. See 'organotin'.
- indicator organisms or species** An organism whose characteristics (e.g. presence or absence, population density, dispersion, reproductive success) are used as an index of attributes too difficult, inconvenient, or expensive to measure for other species, or environmental conditions of interest (Landres *et al.*, 1988). Such characteristics may be used to indicate the degree of pollution or other environmental conditions at a particular locality. See Rowell (1994) and GESAMP (1995) for a discussion.
- infauna** Benthic animals which live within the seabed.
- infralittoral** A subzone of the sublittoral in which upward-facing rocks are dominated by erect algae, typically kelps; it can be further subdivided into the upper and lower infralittoral (based on Hiscock 1985). The term is also used by Glémarec (1973) to refer to areas (étages) with a eurythermal environment of great seasonal and also daily and tidal amplitude. **1) lower** The part of the infralittoral subzone which, on hard substrata, supports scattered kelp plants (a kelp park) or from which kelps are absent altogether and the seabed is dominated by foliose red and brown algae. It may be difficult to distinguish the lower infralittoral where grazing pressure prevents the establishment of foliose algae. **2) upper** The part of the infralittoral subzone which, on hard substrata, is dominated by Laminariales forming a dense canopy, or kelp forest (based on Hiscock, 1985).
- inquilinism** A symbiotic association in which one symbiont lives in close association with another, generally in the tube or burrow or actually within a body chamber of the host (Brusca, 1980).
- international importance 1) biotopes or areas (conservation assessment)** Biotopes or areas which are highly rated in a coastal sector (q.v.) are considered of international importance if they are one of the best examples or only examples present in the north-east Atlantic (North Cape, Norway to Gibraltar). This was, until 1995, defined for communities as being: "Communities which are outstandingly good examples of their type in the north-east Atlantic. Communities recorded at only a very few locations in the north-east Atlantic" (Hiscock & Mitchell 1989). Cf. 'international importance: species', 'local importance', 'national importance', 'regional importance' (biotopes or areas and species). **2) species (conservation assessment)** Species which are recorded at only a very few locations in the north-eastern Atlantic. Species recorded in higher abundance in the area under consideration than anywhere else in the north-eastern Atlantic, or where the area is one of only a few locations where large quantities are recorded (Davies *et al.*, 1990; based on Hiscock & Mitchell, 1989). Cf. 'international importance: biotopes or areas', 'local importance', 'national importance', 'regional importance' (biotopes or areas and species).
- interstitial** Relating to the system of cavities and channels formed by the spaces between grains in a sediment (interstitial space).
- intertidal** The zone between the highest and lowest tides (from Lincoln *et al.*, 1998).

- introduced species** Any species which has been introduced directly or indirectly by human agency (deliberate or otherwise), to an area where it has not occurred in historical times and which is separate from and lies outside the area where natural range extension could be expected (i.e. outside its natural geographical range (q.v.)). The term includes non-established introductions ('aliens' (q.v.)) and established non-natives (q.v.), but excludes hybrid taxa derived from introductions ('derivatives').
- irreplaceability (conservation assessment)** Not capable of replacement if destroyed in some way.  
Applied to habitat features, biotopes and species.
- isogamous** Having gametes of similar size, shape and behaviour. (Lincoln *et al.*, 1998).
- iteroparous** Breeding several times per lifetime (cf. semelparous) (Barnes *et al.*, 1993).
- juvenile** the life stage between the larval stage and the adult stage, characterized by the absence of reproductive ability (adapted from Baretta-Bekker *et al.*, 1992).
- keystone species** A species which, through its predatory activities (for instance, grazing by sea urchins) or by mediating competition between prey species (for instance, by eating sea urchins), maintains community composition and structure. Removal of a keystone species leads to rapid, cascading changes in the structure they support (based on Raffaelli & Hawkins, 1996). The term is also applied here to species which provide a distinctive habitat (for instance a bed of the horse mussel *Modiolus modiolus*, or kelp plants *Laminaria hyperborea*) and whose loss would therefore lead to the disappearance of the associated community.
- k-strategy** A life strategy optimally geared to living in a stable habitat with a high level of interspecific competition. Parental care is facilitated by low fecundity (small litters of large size offspring), by longevity and size. K-strategists are unlikely to be well adapted to recover from population densities significantly below their equilibrium level and may become extinct if depressed to such low levels (from Baretta-Bekker *et al.*, 1992). Cf. r-strategy.
- lanceolate** Lance shaped and usually elongate (Brusca, 1980).
- larva** A juvenile phase differing markedly in morphology and ecology from the adult (Barnes *et al.*, 1993).
- lecithotrophic** Development at the expense of internal resources (i.e. yolk) provided by the female (cf. planktotrophic) (Barnes *et al.*, 1993).
- life form** Structural types of organisms or growth forms that dominate or are most conspicuous in certain environmental conditions. (based on Richards *et al.*, 1995) (cf. growth form).
- littoral** The area of the shore that is occupied by marine organisms which are adapted to or need alternating exposure to air and wetting by submersion, splash or spray. On rocky shores, the upper limit is marked by the top of the *Littorina/Verrucaria* belt and the lower limit by the top of the laminarian zone (Lewis, 1964). It is divided into separate subzones, particularly marked on hard substrata. Cf. 'intertidal'.
- littoral fringe** The upper subzone of the littoral zone, bordering the supralittoral. It is characterised by marine lichens, littoral molluscs and algae tolerant of exposure to air for long periods; its lower boundary is characteristically the upper limit of dense barnacles. This subzone can be further subdivided into the upper and lower littoral fringes (from Hiscock, 1990).
- local importance (conservation assessment)** Biotopes or locations which are among the best examples or the only examples within a particular physiographic feature or area of coast but occur widely elsewhere in the coastal sector (q.v.). This was, until 1995, defined as being: "communities or areas which are widespread in similar situations but for which the one mentioned is a good example in the coastal sector under consideration". (Based on Hiscock & Mitchell, 1989.) Cf. 'international importance: species', 'national importance', 'regional importance' (biotopes or areas and species).
- Lowest Astronomical Tide** The lowest tidal level which can be predicted to occur under average meteorological conditions and any combination of astronomical conditions (from Ministry of Defence, 1987).
- lusitanian (biogeographical)** Referring to a biogeographical region centred to the south of the British Isles and influencing the extreme south-west of the British Isles.
- macrobenthos** The larger organisms of the benthos, exceeding 1 mm in length (from Lincoln & Boxshall, 1987); often applied to organisms >0.5mm. Cf. 'meiobenthos', 'microbenthos'.
- macrofauna** Animals exceeding 1 mm in length (Lincoln & Boxshall, 1987) or retained on a 1 mm or 0.5mm sieve; often applied to organisms >0.5mm. Cf. 'meiofauna', 'microfauna'.
- macroscopic** Large enough to be visible to the naked eye, typically exceeding 1mm in length.



- maerl** Twig-like unattached (free-living) calcareous red algae, often a mixture of species and including species which form a spiky cover on loose small stones - 'hedgehog stones'.
- mariculture** The cultivation, under appropriate environmental conditions, of marine organisms in seawater by human effort for commercial purposes (based on Baretta-Bekker *et al.*, 1992 and Charton & Tietjen, 1989). (See also 'aquaculture').
- marine protected area** "Any area of intertidal or subtidal terrain, including geological and geomorphological features, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment." (IUCN definition, as modified by the Marine Protected Area Group, a working group of Wildlife Link's Joint Marine Group).
- Marine Nature Reserve (MNR)** A statutory marine protected area declared in Great Britain by the Nature Conservancy Council and its successor agencies under the Wildlife and Countryside Act 1981 for the purpose of conserving marine flora or fauna or geological or physiographical features in the area and providing opportunities for study and research (from Anon., 1994). Voluntary MNRs are non-statutory protected areas agreed by local sea-users and other interested parties.
- massive** Bulky (Homes, 1979).
- Mediterranean (biogeographical)** An extension of the Atlantic Ocean between Europe and Africa (Charton & Tietjen, 1989) often used to describe a biogeographic region but which, according to Ekman (1953), is not a distinct faunal unit but enters into a greater one which includes the neighbouring parts of the Atlantic.
- medusoid / medusiform** Disk, bell or umbrella shaped and often gelatinous (Barnes *et al.*, 1993).
- meiobenthos** Small benthic organisms which pass through a 1 mm mesh sieve, but are retained by a 0.1mm mesh (from Lincoln & Boxshall, 1987). Typically, they inhabit interstitial space in sediments. Cf. 'macrobenthos', 'microbenthos'.
- meiofauna** Small interstitial animals which pass through a 1 mm mesh sieve but are retained by a 0.1mm mesh (from Lincoln & Boxshall, 1987). Cf. 'macrofauna', 'microfauna'.
- meroplankton** Temporary plankton consisting of pelagic stages of organisms which also have benthic stages. Mainly the larvae of sedentary organisms. (From Baretta-Bekker *et al.*, 1992). Cf. holoplankton.
- mesohaline** Pertaining to brackish water between 5 ‰ and 18 ‰ salinity (from McLusky, 1993).
- metagamic** Pertaining to reproductive cycles that alternate between sexual and asexual phases (Lincoln *et al.*, 1998).
- microbenthos** Microscopic benthic organisms less than 0.1 mm in length (Lincoln & Boxshall, 1987). Cf. 'macrobenthos', 'meiobenthos'.
- microfauna** Small animals less than 0.1 mm length, not visible to the naked eye (cf. 'macrofauna', 'meiofauna').
- microhabitat** A small part of the habitat which has distinct physical conditions, e.g. rock crevice.
- microscopic** Any organism which cannot be observed without the use of a microscope.
- migratory** Of organisms that move from one habitat or location to another; typically periodically or seasonally and of relatively long distance (from Lincoln *et al.*, 1998).
- mobile** Capable of spontaneous movement, able to move freely.
- moderately exposed (wave exposure)** Generally coasts facing away from prevailing winds and without a long fetch, but where strong winds can be frequent (from Hiscock, 1990).
- modifier** A physical or biological feature or occurrence affecting a site which changes the characteristics of a habitat, e.g. sand-scour, wave surge, substratum mobility, freshwater run-off, grazing, or pollution.
- monitoring** The process of repetitive observation, for defined purposes, of one or more elements of the environment, according to prearranged schedules in space and time and using comparable methods for environmental sensing and data collection. Monitoring provides factual information concerning the present state and past trends in environmental behaviour (Based on UNEP definition). The term is also applied to compliance monitoring against accepted standards to ensure that agreed or required measures are followed. (Cf. 'surveillance').
- mutualism** A symbiosis in which both organisms benefit, frequently a relationship of complete dependence. (Lincoln *et al.*, 1998) (cf. symbiosis, commensalism, parasite).

- national importance 1) biotopes and areas (conservation assessment)** Biotopes or areas which are highly rated in the coastal sector will be described as of national importance if they are one of the best examples or only examples known in Great Britain. This was, until 1995, defined for communities as being, "outstandingly good examples of their type in Britain". National importance can apply to biotopes which are, or are likely to be, widely occurring in other similar physiographic situations in the north-eastern Atlantic (based on Hiscock & Mitchell, 1989). Cf. 'national importance: species', 'international importance', 'local importance', 'regional importance' (biotopes or areas and species).
- 2) species (conservation assessment)** Considered to be those benthic species which are nationally rare or nationally scarce (q.v.). Until 1995, defined as: "Species which are recorded at only a few locations in Britain but are more widespread in other parts of the north-east Atlantic. Species recorded in higher numbers at locations under consideration than elsewhere in Britain or where the site is one of a very few locations where large quantities are recorded in Britain" (based on Hiscock & Mitchell, 1989). A species may also be nationally important where a high proportion of the world population occurs in Britain, even though the species might be widespread in Britain. A nationally important species could be one whose numbers are declining rapidly. Cf. 'national importance: biotopes and areas', 'international importance', 'local importance', 'regional importance' (biotopes or areas and species).
- nationally rare (species)** For marine conservation purposes, these are regarded as species of limited national occurrence (q.v. rarity). By analogy with the approach adopted in British Red Data Books (for instance, Bratton 1991) but referring to sea areas within the three-mile limit of territorial seas, they are defined as those species known to occur in 0.5% or less (eight or fewer) of the 10 x 10 km squares containing sea within the three-mile limit of territorial seas for Great Britain (Sanderson, 1996). Cf. 'nationally scarce'.
- nationally scarce (species)** For marine conservation purposes, these are regarded as species of limited national occurrence (q.v. rarity). By analogy with the approach adopted in British Red Data Books (for instance, Bratton 1991) but referring to sea areas within the three-mile limit of territorial seas, they are defined as those species known to occur in 0.5 to 3.5% (nine to 55) of the 10 x 10 km squares containing sea within the three-mile limit of territorial seas for Great Britain (Sanderson, 1996). Cf. 'nationally rare'.
- natural habitat** As defined by the Habitats Directive (q.v.) "natural habitats means terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural." (Commission of the European Communities, 1992).
- naturalness (conservation assessment)** The extent to which a location and its associated biotopes is unaffected by anthropogenic activities.
- natural range** The geographical range of a species in recent times (since about 5,000 BP) but excluding any changes to that range as a result of human agency.
- nature conservation** The regulation of human use of the global ecosystem to sustain its diversity of content indefinitely (Nature Conservancy Council, 1984).
- nekton** Actively swimming pelagic organisms able to move independently of water currents; typically within the size range 20 mm to 20 m (from Lincoln & Boxshall, 1987).
- neritic** Referring to coastal waters overlying the continental shelf (0 m to 200 m below chart datum) (based on Baretta-Bekker *et al.*, 1992).
- neuston 1)** Organisms similar to plankton, that inhabit the surface film of open water. **2)** the ecosystem of the surface film of open water.
- niche** The ecological resource occupied by a species in a community or ecosystem.
- non-native (species)** A species which has been introduced directly or indirectly by human agency (deliberate or otherwise), to an area where it has not occurred in recent times (about 5,000 years BP) and which is separate from and lies outside the area where natural range extension could be expected (i.e. outside its natural geographical range (q.v.)). The species has become established in the wild and has self-maintaining populations; the term also includes hybrid taxa derived from such introductions ('derivatives'). (Cf. 'alien species'; 'introduced species'; 'recent colonist'; 'reintroduction'; 'translocation').
- oceanodromous** Used of organisms that migrate only within the oceanic province (Lincoln *et al.*, 1998).
- oligohaline** Pertaining to brackish water between 0.5 ‰ and 5 ‰ salinity (based on Carriker, 1967, in McLusky, 1993).
- oligotrophic** Having low primary productivity; used of water bodies or substrata low in nutrients.

- omnivores** Animals which feed on a mixed diet including plant and animal material (from Lincoln *et al.*, 1998).
- ontogenetic migration** The occupation by and animal of different habitats at different stages of development (Lincoln *et al.*, 1998).
- oogamous** Having large, non-motile eggs and small motile sperm. Usually applied to algae (Lincoln *et al.*, 1998).
- organochlorine** chlorinated hydrocarbon A synthetic organic compound containing chlorine, highly toxic and the base for many pesticides. Includes PCBs (polychlorinated biphenyls).
- organotin, tributyltin (TBT), triphenyltin** A synthetic organic compound containing tin, used as a pesticide particularly to prevent the establishment of fouling organisms, but known to be toxic to certain species even at low concentrations. See 'imposex'.
- oviparous** A type of reproduction in animals in which the fertilised eggs are laid or spawned by the mother.
- ovoviviparous** A type of reproduction in animals in which the embryo(s) develop in persistent membranes and hatch within the maternal body. No nutrition is derived from the mother.
- oxycline** A horizontal boundary layer in the water column, at which dissolved oxygen content changes sharply with depth.
- paralytic shellfish poisoning (PSP)** A serious illness affecting organisms with higher nervous systems (vertebrates) caused by eating shellfish which have themselves consumed toxin-producing micro-organisms (usually certain phytoplankton species) and have bioaccumulated the toxins.
- parameter** Quantity constant in case considered, but varying in different cases (Thompson, 1995). An arbitrary constant, as distinguished from a fixed or absolute constant. Any desired numerical value can be given to a parameter. The term is also used to describe a definable characteristic of an item, device or system (Considine, 1976). A variable in terms of which it is convenient to express other interrelated variables which may then be regarded as being dependent upon the parameter (Chambers & Chambers, 1971).
- parapodium** (pl. parapodia) Lateral appendage of segments in annelids, supported by aciculum and bearing chaetae. Composed of two lobes, the dorsal notopodium and ventral neuropodium. May also bear gills and cirri in some species of annelid (Stachowitsch, 1992).
- parasite** An organism that lives in or on another living organism (the host), from which it obtains food and other requirements. The host does not benefit from the association and is usually harmed by it. (cf. commensalism, mutualism, symbiosis).
- parthenogenesis** A form of asexual multiplication in which the ovum develops into a new individual without fertilisation (Barnes *et al.*, 1993).
- Particularly Sensitive Sea Area** An area that needs special protection through action by IMO because of its significance for recognised ecological or socio-economic or scientific reasons and which may be vulnerable to environmental damage by maritime traffic (IMO, 1991).
- pedunculate** With the body borne on a stalk (Nichols & Cooke, 1971).
- pelagic zone** The open sea and ocean, excluding the sea bottom. Pelagic organisms inhabit such open waters.
- penicillate** Brush like (Prescott, 1969).
- persistence** The continued presence of species or communities at a location (usually inferring in spite of disturbance or change in conditions) (cf. 'constancy', 'stability', 'resilience').
- photophilous** Thriving in conditions of strong light (cf. 'sciophilous').
- photosynthesis** The biochemical process that utilises radiant energy from sunlight to synthesise carbohydrates from carbon dioxide and water in the presence of chlorophyll and other photopigments (based on Lincoln *et al.*, 1998).
- phylum** (pl. phyla) A major taxonomic division containing one or more classes.
- phyto-** (as prefix, e.g. phytobenthos, phytoplankton) Pertaining to plants.
- phytoplankton** Planktonic plant life: typically comprising suspended or motile microscopic algal cells such as diatoms, dinoflagellates and desmids (based on Lincoln & Boxshall, 1987).
- pinnate** Branching like a feather - an elongate main axis with lateral branches or lobes (Prescott, 1969).
- pisciform** In the shape of a fish.

- plankton** Organisms which drift in the water column and have limited powers of locomotion in comparison with the horizontal water movements. Many benthic animals have planktonic larvae which act as a dispersive phase. (See also holoplankton, meroplankton). (Based on Hawkins & Jones, 1992.) (Cf. 'nekton').
- planktotrophic** Feeding at least in part on materials captured from the plankton (cf. lecithotrophic) (Barnes *et al.*, 1993).
- pleuston** Buoyant organisms subject to wind drift. (Baretta-Bekker *et al.*, 1992).
- poikilohaline** A term used of organisms having body fluids that conform to external changes in salinity (from Lincoln *et al.*, 1998).
- pollution (marine)** "The introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of seawater and reduction of amenities." (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection - GESAMP, 1995).
- polyhaline** Pertaining to brackish water having a salinity between 18 ‰ and 30 ‰ (from McLusky, 1993).
- polymorphic** Occurrence of different forms (usually morphological) of individuals of the same species.
- population** All individuals of one species occupying a defined area and usually isolated to some degree from other similar groups (from Lincoln & Boxshall, 1987).
- precautionary principle** A principle underlying the concept of sustainable use of resources, which implies that:
- Prudent action be taken in the absence of scientific certainty;
  - The balance of the burden of proof between the requirement to prove significant damage and the requirement to show no irreversible harm be encouraged;
  - Environmental well-being be given legitimate status and best-practice techniques be developed.
- (From WWF *Marine Update* No. 14, April 1994).
- protandrous** A condition of hermaphroditism in plants and animals where male gametes mature and are shed before female gametes mature (Holmes, 1979).
- protoconch** The first shell laid down by the veliger larvae of gastropods (Barnes, 1980).
- protists** Any organism belonging to the kingdom Protista, including bacteria, protozoans, unicellular algae and fungi, regarded as distinct from plants and animals (from Makins, 1991).
- protogyny** A condition of hermaphroditism in plants and animals where female gametes mature and are shed before male gametes mature (Holmes, 1979).
- pycnocline** A horizontal boundary layer in the water column at which water density changes sharply with depth, as a result of either a halocline or a thermocline, or both acting together. See 'stratification'.
- quadrat** 1) a delimited area for sampling flora or fauna; standard size varies depending on the organism or community studied; usually consists of a frame of defined, standardized size. 2) a sampling frame (adapted from Lincoln *et al.*, 1998).
- radial** Symmetrical about any plane passed perpendicular to the oral/aboral axis (Barnes *et al.*, 1993).
- rarity (conservation assessment)** Seldom found or occurring. 'Rarity' needs to take account of the type of distribution and abundance which would be expected of a particular habitat, community, taxonomic group or species and any historical information about past numbers.
- rarity (species)** "The current status of an organism which, by any combination of biological or physical factors, is restricted either in numbers or area to a level that is demonstrably less than the majority of other organisms of comparable taxonomic entities" (Gaston, 1994). (See also 'nationally rare', 'nationally scarce').
- recent colonist** A species which, without any human intervention, has extended its natural geographical range (q.v.) in recent times and which has established new self-maintaining and self-regenerating populations in the wild (cf. 'non-native'; 'vagrant').
- recoverability** The ability of a habitat, community or individual (or individual colony) of species to redress damage sustained as a result of an external factor.
- recruitment (population biology)** Term used for the arrival of young in a given population per unit of time (based on Baretta-Bekker *et al.*, 1992).
- Red Data Book species** A species listed in catalogues published by the IUCN or by national agencies, listing species which are rare, endangered or vulnerable to extinction globally or nationally.

- Red list species** A species identified as 'Extinct', 'Extinct in the wild', 'Critically endangered', 'Endangered', 'Vulnerable', 'Lower risk', 'Data deficient' or 'Not evaluated' according to criteria laid down in the *IUCN Red List Categories* (International Union for the Conservation of Nature and Natural Resources, 1994).
- refugium** (pl. refugia) Geographical area which has remained isolated from, or unaltered by, climatic or other changes affecting surrounding regions, and that therefore provides a haven for relict (q.v.) species or populations.
- regeneration** Replacement by compensatory growth and differentiation of lost parts of an organism (Barnes *et al.*, 1993).
- regional importance biotopes and areas (conservation assessment)** Biotopes or areas which are widespread in similar situations but for which this is a good example in the coastal sector (q.v.) under consideration. Regional importance was, until 1995, defined for communities as being "Communities which are present in similar physiographic situations in Britain but which are outstandingly good examples of their type in the location under consideration, or are as good as examples of similar communities present elsewhere in Britain. Communities recorded at only a few locations in the same biogeographic region." (Davies *et al.*, 1990, based on Hiscock & Mitchell, 1989). (Cf. 'regional importance: species', 'international importance', 'local importance', 'national importance' (biotopes or areas and species)).
- regional importance (species conservation assessment)** Species which are unrecorded or recorded at only a few locations in similar physiographic situations in other parts of Britain. Species recorded in higher abundance in the site under consideration than in any other part of the region. Species which are at the geographical limits of their distribution might be included in this category. (Davies *et al.*, 1990, based on Hiscock & Mitchell, 1989). Cf. 'regional importance: biotopes or areas' 'international importance', 'local importance', 'national importance' (biotopes or areas and species).
- reintroduction** A species which has been reintroduced by human agency, deliberate or otherwise, to an area within its natural geographical range (q.v.) but where it had become extinct in historical times.
- relict (species)** A species believed to have been previously more widely distributed but now restricted to a limited number of locations where populations are probably self-sustaining, for example, *Thyasira gouldi*, *Leptopsammia pruvoti*.
- representativeness (conservation assessment)** Typical of a feature, habitat or assemblage of species. Representative examples are identified from the range of natural or semi-natural habitats and associated communities (biotopes) within a biogeographically distinct area or the boundaries of a national territory.
- resident** A permanent inhabitant, non-migratory.
- resilience** The ability of an ecosystem to return to its original state after being disturbed (from Makins, 1991) (cf. 'constancy', 'persistence', 'stability').
- resistance** The degree to which a variable is changed following perturbation (Pimm, 1984). The tendency to withstand being perturbed from the equilibrium (Connell & Sousa, 1983). (cf. 'Stability'; 'adjustment stability'.)
- reticulate** In the form of a mesh or net (Prescott, 1969).
- richness (species)** The number of species in a community, habitat or sample (cf. 'diversity'; 'evenness').
- risk assessment** An evaluation of the possibility of undesired events and the probability of harm being caused.
- rostrum** Anterior extension of the carapace which projects between the eyestalks.
- RoxAnn** An acoustic ground discrimination system, based on sonar, which provides information on seabed relief and features.
- r-strategy** A life strategy which allows a species to deal with the vicissitudes of climate and food supply by responding to suitable conditions with a high rate of reproduction. R-strategists are continually colonising habitats of a temporary nature. (From Baretta-Bekker *et al.*, 1992). Cf. 'K-strategy'.
- salinity** Measure of the concentration of dissolved salts in seawater, normally expressed as parts per thousand (‰). Freshwater is regarded as < 0.5 ‰ (limnetic), seawater as > 30 ‰ (euhaline), and brackish water as intermediate, including oligohaline, mesohaline and polyhaline waters (based on McLusky, 1993).

- saltmarsh** Areas of alluvial or peat deposits, colonised by herbaceous and small shrubby terrestrial vascular plants, almost permanently wet and frequently inundated with saline waters (from Long & Mason, 1983).
- scavenger** Any organism that feeds on dead organic material.
- sciophilous** Thriving in shaded situations, or in habitats of low light intensity (from Lincoln *et al.*, 1998) (cf. 'cryptic', 'photophilous').
- scour** The effect of abrasion, usually by sand or gravel, on the seabed.
- seasonal** Showing periodicity related to the seasons (Lincoln *et al.*, 1998).
- sedentary** Attached to a substratum but capable of movement across (or through) it (cf. 'sessile').
- segment** A semi-independent, serially repeated unit of the body (Barnes *et al.*, 1993).
- semelparous** Breeding only once then dying (cf. iteroparous) (Barnes *et al.*, 1993).
- semi-quantitative** Measurement based on estimates or rough counts of relative quantity (density, cover) - e.g. abundance scales (cf. 'quantitative').
- sensitivity (conservation assessment)** The intolerance of a habitat, community or individual (or individual colony) of a species to damage, or death, from an external factor. See 'fragility', 'vulnerability'.
- sessile** Permanently attached to a substratum (cf. 'sedentary').
- sheltered (wave exposure)** Coasts with a restricted fetch and/or open water window. Coasts can face prevailing winds but with a short fetch (< 20km) or extensive shallow area offshore, or may face away from prevailing winds (from Hiscock, 1990).
- shore backing** The terrestrial habitat immediately behind the shore.
- Site of Special Scientific Interest (SSSI)** An area of land or water notified by the Nature Conservancy Council or its successor agencies under the Wildlife and Countryside Act 1981 as being of special nature (can include geological) conservation importance.
- solitary** Living alone, not gregarious.
- Special Area of Conservation (SAC)** A site of [European] Community importance designated by the [EU] Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated (Commission of the European Communities 1992). (This status is achieved by sites adopted by the European Commission).
- Special Protection Area (SPA)** A site of European Community importance designated under the Wild Birds Directive (Commission of the European Communities Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds).
- species richness** The number of species in a given sample, assemblage, community, biotope, or habitat. (Lincoln *et al.*, 1998).
- sporophylls** Additional structures, produced by some kelps, above the holdfasts and below the blade, which resemble small thicker blades or may be flattened outgrowths from the stripe.
- sporophytes** The diploid, spore producing, asexual generation in the life cycle of some plants; typically formed by the fusion of haploid gametes. (Lincoln *et al.*, 1998).
- stability** The ability of an ecosystem to resist change (from Makins, 1991) (cf. 'constancy', 'persistence', 'resilience').
- stellate** Arranged like a star.
- stenohaline** Tolerance of only a narrow range of salinities (from Lincoln & Boxshall, 1987).
- stenothermal** Tolerance of a narrow range of temperatures.
- stochastic (statistics)** Of a random variable. Having a probability of distribution, usually with finite variance.
- straplike** Ribbonlike, in the form of a strap or ribbon.
- Strategic Environmental Assessment (SEA)** The formalised, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or programme and its alternatives, including the preparation of a report on the evaluation and the use of the findings in publicly-accountable decision-making (Pritchard 1993) (cf. 'Environmental Assessment').
- stratum (ecological)** (pl. strata) A horizontal layer of vegetation within a stratified plant community (from Lincoln & Boxshall, 1987).

- stress** "A chemical or physical process that leads to a response within an organism, or at the levels of whole organisms or assemblages" (from Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection - GESAMP, 1995).
- sublittoral** The zone exposed to air only at its upper limit by the lowest spring tides, although almost continuous wave action on extremely exposed coasts may extend the upper limit high into the intertidal region. The sublittoral extends from the upper limit of the large kelps and includes, for practical purposes in nearshore areas, all depths below the littoral. Various subzones are recognised (based on Hiscock, 1985.) (Cf. 'subtidal').
- sublittoral fringe** The upper part of the sublittoral zone which is uncovered by the tide. On hard substrata, the zone is characterised by the kelps *Laminaria digitata* and *Alaria esculenta*. The lower limit of this zone is marked by the upper limit of the truly sublittoral kelp *Laminaria hyperborea*. This species assemblage does not occur on all British coasts (based on Lewis, 1964).
- substratum** (pl. substrata) Material available for colonisation by plants and animals; a more correct term in this context than 'substrate'.
- succession** Sequential development of plant or animal communities through time.
- supralittoral** The lower terrestrial zone, characteristically dominated by orange and white-to-grey lichens on hard substrata with scattered salt-tolerant higher plants and mosses (from Hiscock, 1990).
- surrogate species** Species which are likely to change if the whole community is changing and therefore respond to change on behalf of the community.
- surveillance** A procedure by which a series of surveys is conducted in a sufficiently rigorous manner for changes in the attributes of a site (or species) to be detected over a period of time. Surveillance is often conducted to identify normal background variation ('noise') in order that abnormal changes can be identified by a monitoring programme. (From Marine Conservation Monitoring Workshop, January 1993.) The term is also applied to compliance surveillance to ensure that agreed or required measures are followed. (See also 'survey'. Cf. 'monitoring').
- survey** An inventory of the attributes of a site, area or region in terms of habitat and associated organisms (or of the distribution and/or autecological characteristics of selected species), usually by means of a standardised procedure (based on Marine Conservation Monitoring Workshop, January, 1993).
- suspension feeders** Suspensivores, filter-feeders, any organisms which feed on particulate organic matter, including plankton, suspended in the water column (from Lincoln *et al.*, 1998).
- sustainability (environmental)** Maintaining the environment's natural qualities and characteristics and its capacity to fulfil its full range of functions, including maintenance of biodiversity (from English Nature, Planning for environmental sustainability, June 1994).
- sustainable development** "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987 (the 'Brundtland' Report)).
- symbiosis** The living together in a constant and definite relationship of two different organisms (cf. commensalism, mutualism, parasite) (Brusca, 1980).
- synecology** The study of the ecology of groupings of organisms, populations, communities or systems; ecological sociology (based on Lincoln *et al.*, 1998) (cf. 'autecology').
- taxon** (pl. taxa) A taxonomic group of any rank, including all its subordinate groups; may be a single species or a group of related species, e.g. genus, class, order, etc., considered to be sufficiently distinct from other such groups to be treated as a separate unit (based on Lincoln & Boxshall, 1987 and Fitter & Manuel, 1986).
- taxonomy** The branch of biology concerned with the classification of organisms into groups (taxa) based on similarities of structure, origin, etc.
- terrestrial** Living on, or referring to, land.
- tidal stream** The alternating horizontal movement of water associated with the rise and fall of the tide (from Lincoln & Boxshall, 1987) (cf. 'current').
- tide** The periodic vertical movement of water level with respect to some point on land. See 'astronomical tide'.
- toxicology** The branch of science concerned with poisons, their nature, effects and antidotes (from Makins, 1991). 'Ecotoxicology' is the application of toxicology to the natural environment.
- tributyl tin (TBT)** (See 'organotin').
- tubicolous** Tube dwelling (Barnes *et al.*, 1993).

- turbinate** Whorled (Brusca, 1980).
- turf** The lowest stratum of erect branching or filiform species.
- typicalness (conservation assessment)** See 'Representativeness'.
- ultra-sheltered (wave exposure)** Fully enclosed coasts with a fetch measured in tens or at most a few hundred metres (from Hiscock, 1990).
- umbo** In valve, the strongly curving dorsal region following the beak (Stachowitsch, 1992).
- understorey, undergrowth layer** Organisms occurring under the main canopy of algae, especially of kelps (from Hawkins & Jones, 1992).
- vagile** Wandering; freely motile, mobile. (cf. 'sessile').
- vagility** The tendency of an organism or population to change its location or distribution with time; mobility.
- vagrant (species)** Individuals of a species which, by natural means, move from one geographical region to another outside their usual range, or away from usual migratory routes, and which do not establish a self-maintaining, self-regenerating population in the new region (cf. 'alien species'; 'recent colonist').
- vermiform** Wormlike, long and slender like a worm (Brusca, 1980).
- very exposed (wave exposure) 1)** Open coasts which face into prevailing winds and which receive wind-driven waves and oceanic swell without any offshore obstructions for several hundred kilometres, but where deep water is not close to the shore (50m depth contour further than about 300m). **2)** Open coasts adjacent to extremely exposed sites but which face away from prevailing winds. (From Hiscock, 1990).
- very sheltered (wave exposure)** Coasts with a fetch less than about 3 km where they face prevailing winds or about 20 km where they face away from prevailing winds, or which have offshore obstructions such as reefs or a narrow (<30°) open water window (based on Hiscock, 1990).
- viable** Having the capacity to live, grow, germinate or develop.
- viability** the quality or state of being viable; capacity for living; ability to live under certain conditions.
- viviparous** A type of reproduction in animals in which the embryo(s) develop within and derive nourishment from the maternal body.
- vulnerability** The likelihood that a habitat, community or individual (or individual colony) of a species will be exposed to an external factor to which it is sensitive. See 'Sensitivity'.
- vulnerable (IUCN Red List categories)** A taxon which is not 'Critically endangered' (q.v.) or 'Endangered' (q.v.) but is facing a high risk of extinction in the wild in the medium term future (International Union for the Conservation of Nature and Natural Resources, 1994) (cf. 'Extinct', 'Critically endangered', 'Endangered').
- water quality** 1) The nature of a body of water in terms of its physical (for instance, suspended sediment load) and chemical (for instance, salinity) characteristics. 2) The degree of contamination of water. See 'classification (water quality)'.
- whiplike** In the form of a whip.
- xenobiotic** a foreign organic chemical; a non-biological compound that an organism must eliminate or neutralize by detoxification; used of chemical environmental pollutants such as pesticides in water (Lincoln *et al.*, 1998).
- xenoecic** inhabiting the empty domicile or shell of another organism (Lincoln *et al.*, 1998).
- yellow substance (Gelbstoff)** mixture of dissolved organic materials, including humic acids, that absorb in the blue spectrum of light, resulting in yellow water.
- zooid** One of the individual animals connected together in a common mass constituting a colony (based on Fitter & Manuel, 1986).
- zooplankton** The animal component of the plankton (Lincoln *et al.*, 1998).



## Specific glossaries

## Typical abundance of a species in Britain and Ireland:

Term	Definition
<b>High</b>	Species that are found in high numbers in their appropriate habitats. Equivalent to Superabundant and Abundant on the MNCR SACFOR abundance scale
<b>Moderate</b>	Species that are found in moderate numbers in their appropriate habitats. Equivalent to Common and Frequent on the MNCR SACFOR abundance scale
<b>Low</b>	Species that are found in low numbers in their appropriate habitats. Equivalent to Occasional and Rare on the MNCR SACFOR abundance scale
<b>Very low</b>	Less than rare on the MNCR SACFOR abundance scale

## Mobility and attachment type:

Term	Definition	
<b>Mobile</b>	<b>Swimmer</b>	An organism that moves through the water column via movements of its fins, legs or appendages, via undulatory movements of the body or via jet propulsion (e.g. <i>Gadus</i> , <i>Loligo</i> ).
	<b>Crawler</b>	An organism that moves along on the substratum via movements of its legs, appendages or muscles (e.g. <i>Carcinus</i> ).
	<b>Burrower</b>	An organism that lives or moves in a burrow (e.g. <i>Arenicola</i> ).
	<b>Drifter</b>	An organism whose movement is dependent on wind or water currents (e.g. <i>Aurelia</i> ).
<b>Fixed</b>	<b>Permanent attachment</b>	Non-motile; permanently attached at the base (Lincoln, Boxshall and Clark 1998) (e.g. <i>Caryophyllia</i> )
	<b>Temporary attachment</b>	Temporary / sporadic attachment. Attached to a substratum but capable of movement across (or through) it (e.g. <i>Actinia</i> )

## Sociability:

Term	Definition
<b>Solitary</b>	Living alone, not gregarious (Thompson, 1995).
<b>Gregarious</b>	Living in groups or communities, growing in clusters (Thompson, 1995).
<b>Colonial</b>	Descriptive of organisms produced asexually which remain associated with each other; in many animals, retaining tissue contact with other polyps or zooids as a result of incomplete budding (Barnes <i>et al.</i> , 1993).

**Environmental Position:**

<b>Term</b>	<b>Definition</b>
<b>Epibenthic</b>	Living on the surface of the substratum.
<b>Epilithic</b>	Growing on the surface of rock or other hard inorganic substrata.
<b>Epifaunal / floral</b>	An animal / plant living on the surface of the substratum.
<b>Epiphytic</b>	Growing on the surface of a living plant but not parasitic upon it.
<b>Epizoic</b>	Growing or living on the exterior of a living animal but not parasitic upon it.
<b>Infaunal</b>	Benthic animals which live within the seabed.
<b>Interstitial</b>	Relating to the system of cavities and channels formed by the spaces between grains in sediment (interstitial space).
<b>Lithotomous</b>	Relating to an organism that burrows into rock.
<b>Demersal</b>	Living at or near the bottom of a sea or lake, but having the capacity for active swimming (from Lincoln <i>et al.</i> , 1998).
<b>Pelagic</b>	Inhabiting the open waters of the sea or ocean, excluding the bottom layers.
<b>Neustonic</b>	Living on or under the surface film of open water.
<b>Pleustonic</b>	Living permanently at the water surface due to their own buoyancy, normally positioned partly in the water and partly in the air.

**Growth Form:**

<b>Term</b>	<b>Definition</b>
<b>Accretion</b>	Build up or accumulation of sediment.
<b>Arborescent / Arbuscular</b>	Having the shape or characteristics of a tree.
<b>Articulate</b>	Jointed, arthrous (Holmes, 1979).
<b>Bivalved</b>	Characteristically a shell of two calcareous valves joined by a flexible ligament.
<b>Boring</b>	Makes an excavation (through physical or chemical action) in which to live.
<b>Bullate / Saccate</b>	Balloon or sac-like (Prescott, 1969).
<b>Capitate / Clubbed</b>	Enlarged or swollen at the apex, with a 'head', clubbed (Prescott, 1969).
<b>Clathrate</b>	Latticed (Holmes, 1979).
<b>Conical</b>	Cone shaped e.g. Limpet -shaped, patelliform, (adapted from Stachowitsch, 1992).
<b>Crustose</b>	Forming or resembling a crust (Thompson, 1995).
<b>Cushion</b>	A mass or pillow of soft material.
<b>Cylindrical</b>	With straight sides and a circular section (Thompson, 1995).
<b>Dendroid</b>	Branching irregularly – similar to that of a root system (Prescott, 1969).
<b>Digitate</b>	Having parts arranged like fingers on a hand (Holmes, 1979).

**Growth Form (continued):**

<b>Term</b>	<b>Definition</b>
<b>Filiform / Filamentous</b>	Slender and thread-like (Kozloff, 1996).
<b>Flabellate</b>	Shaped like a fan, fanlike (Brusca, 1980).
<b>Flaccid</b>	Soft, limp, flabby (Brusca, 1980).
<b>Foliose</b>	Bearing leaves or leaf-like structures; having the appearance of a leaf.
<b>Forest</b>	A dense stand of large plants in which the upper branches (trees) or laminae (macroalgae) overlap to form a canopy that shades the under story of flora and fauna.
<b>Funnelshaped</b>	In the shape of a funnel.
<b>Globose</b>	Spherical / ovoid / globular (Brusca, 1980).
<b>Lanceolate</b>	Lance shaped and usually elongate (Brusca, 1980).
<b>Massive</b>	Bulky (Homes, 1979).
<b>Medusiform / Medusoid</b>	Disk, bell or umbrella shaped and often gelatinous (Barnes <i>et al.</i> , 1993).
<b>Penicillate</b>	Brush like (Prescott, 1969).
<b>Pinnate</b>	Branching like a feather – an elongate main axis with lateral branches or lobes (Prescott 1969).
<b>Pisciform</b>	Fishlike.
<b>Radial</b>	Symmetrical about any plane passed perpendicular to the oral/aboral axis (Barnes <i>et al.</i> , 1993).
<b>Reticulate</b>	In the form of a mesh or net (Prescott, 1969).
<b>Shrub</b>	Having a very short stem with branches near the ground (Thompson, 1995).
<b>Stellate</b>	Arranged like a star.
<b>Straplike / Ribbonlike</b>	In the form of a strap or ribbon.
<b>Tubicolous</b>	Tube dwelling (Barnes <i>et al.</i> , 1993).
<b>Turbinate</b>	Whorled (Brusca, 1980).
<b>Turf</b>	The lowest stratum of erect branching or filiform species.
<b>Vermiform</b>	Wormlike, long and slender like a worm (Brusca, 1980).
<b>Whiplike</b>	In the form of a whip.

**CHARACTERISTIC FEEDING METHODS:**

<b>Autotroph</b>	<b>Photoautotroph</b>		An organism that obtains metabolic energy from light by a photochemical process such as photosynthesis (e.g. seaweeds, phytoplankton)
	<b>Chemoautotroph</b>		An organism that obtains metabolic energy from oxidation of inorganic substrates such as sulphur, nitrogen or iron (e.g. some micro-organisms)
<b>Suspension Feeder</b> Any organism that feeds on particulate organic matter, including plankton, suspended in the water column (from Lincoln <i>et al.</i> , 1982).	<b>Active</b>		Catching food on a filter from water by actively sweeping (e.g. <i>Porcellana platychelyes</i> ) or pumping (e.g. sea squirts, many bivalve molluscs)
	<b>Passive</b>		Catching food on a filter held into flowing water (e.g. hydroids, sea fans, sea pens), or collecting the 'rain' of detritus on sticky apparatus other than a filter (e.g. <i>Cucumaria frondosa</i> )
<b>Deposit Feeder</b> Any organism which feeds on fragmented particulate organic matter from the substratum; detritivores (from Lincoln <i>et al.</i> , 1982)	<b>Surface</b>		Obtaining food from the surface of the substratum (e.g. <i>Corophium volutator</i> ).
	<b>Sub-surface</b>		Obtaining food from within the substratum (e.g. <i>Echinocardium cordatum</i> ).
<b>Predator</b> An organism that feeds by preying on other organisms, killing them for food (from Lincoln <i>et al.</i> , 1998).	<b>Carnivore</b> Feeding on animals	<b>Active</b>	Catching live animal food through active searching or ambushing.
		<b>Passive</b>	Catching live animal food that happens to make contact with a trap mechanism.
	<b>Omnivore</b> Animal which feeds on a mixed diet including plant and animal material (from Lincoln <i>et al.</i> , 1998).	<b>Active</b>	Consuming live animal or plant food through active searching or ambushing.
		<b>Passive</b>	Consuming live animal or plant food that happens to make contact with a trap mechanism.
	<b>Herbivore</b> An organism which feeds on plants, including phytoplankton.		Grazing on flowering plants, seaweeds, diatoms or bacterial films (e.g. limpets, <i>Hydrobia ulva</i> ).
<b>Saprophage / scavenger</b>			Any organism that actively feeds on dead organic material (e.g. crabs, whelks).
<b>Symbiont contribution</b>			Where some dietary component(s) are provided by symbiotic organisms (e.g. <i>Anemonia</i> with zooxanthellae)
<b>Parasite</b>			An organism that lives in or on another living organism (the host), from which it obtains food and other requirements (e.g. leeches).

**Mode of life:**

<b>Term</b>	<b>Definition</b>
<b>Independent</b>	Any organism not relying on another for food (except as prey), environment or livelihood.
<b>Parasite</b>	An organism that lives in or on another living organism (the host), from which it obtains food and other requirements. The host does not benefit from the association and is usually harmed by it.
<b>Mutualist</b>	A partner in a symbiosis where both organisms benefit, frequently a relationship of complete dependence (Lincoln <i>et al.</i> , 1998).
<b>Inquilinist</b>	A partner in a symbiotic association which lives in close association with another, generally in the tube or burrow or actually within a body chamber of the host (Brusca, 1980).
<b>Commensal</b>	A partner in a symbiosis in where one species derives benefit from a common food supply, whilst the other species is not adversely affected (Lincoln <i>et al.</i> , 1998).
<b>Host</b>	Any organism that provides food or shelter for another organism, e.g. the definitive host of a parasite (for mature or developmental stages), or a symbiont (commensal, mutualist or inquilinist) (adapted from Lincoln <i>et al.</i> , 1998).

**Physiographic type (from Hiscock, 1996a):**

<b>Term</b>	<b>Definition</b>
<b>Open Coast</b>	Any part of the coast not within a marine inlet, strait or lagoon, including offshore rocks and small islands. This includes MNCR types; Linear coast, Islands / Rocks and Semi-enclosed coast.
<b>Offshore seabed</b>	Seabed beyond three miles (5km) from the shore.
<b>Strait/Sound</b>	Channels between the mainland and an island or between two islands which are open at both ends to the open coast (it does not refer to similar features or narrows within marine inlets).
<b>Sealoch</b>	Glacially formed inlets (fjords, fjards) of western Scotland and Ireland; typically elongate and deepened by glacial action with little freshwater influence. Often with narrows and sills dividing the loch into a series of basins.
<b>Ria/Voe</b>	Drowned river valleys of south-west Britain (ria) and Shetland (voe). Often with a greater presence of rock and more marine in character than estuaries.
<b>Estuary</b>	Downstream part of a river where it widens to enter the sea; often with significant freshwater influence and predominantly comprising sediment habitats.
<b>Isolated Saline Water (Lagoon)</b>	Enclosed bodies of water, separated or partially separated from the sea by shingle, sand or sometimes rock and with a restricted exchange of water with the sea, yielding varying salinity regimes.
<b>Enclosed Coast / Embayment</b>	Any other sort of enclosed coast not covered by the definitions above such as harbours or marinas.

**Biological Zones (from Hiscock, 1990):**

<b>Term</b>	<b>Definition</b>
<b>Supralittoral</b>	The lower terrestrial zone, characteristically dominated by orange and white-to-grey lichens on hard substrata with scattered salt-tolerant higher plants and mosses.
<b>Upper Littoral Fringe</b>	This is colonised by <i>Verrucaria maura</i> with <i>Littorina saxatilis</i> and <i>Littorina neritoides</i> often present. May include saltmarsh species on shale/pebbles in shelter.
<b>Lower Littoral Fringe</b>	The <i>Pelvetia/Porphyra</i> belt with patchy <i>Verrucaria maura</i> and <i>Fucus spiralis</i> (on sheltered shores). <i>Fucus disticus</i> and <i>Fucus spiralis nana</i> occurs on extremely exposed shores in the NE. <i>Verrucaria mucosa</i> present above the main barnacle population. May also include saltmarsh species on shale/pebbles in shelter.
<b>Upper Eulittoral</b>	Barnacles and limpets present in quantity with <i>Fucus vesiculosus</i> and <i>Ascophyllum</i> although often this belt has only sparse algal cover compared with the lower eulittoral.
<b>Mid Eulittoral</b>	Barnacle - limpet dominated, sometimes mussels, with <i>Fucus vesiculosus</i> and <i>Ascophyllum nodosum</i> . <i>Mastocarpus stellatus</i> and <i>Palmaria palmata</i> patchy in lower part. Usually quite a wide belt.
<b>Lower Eulittoral</b>	<i>Fucus serratus</i> , <i>Mastocarpus stellatus</i> , <i>Himanthalia elongata</i> and <i>Palmaria palmata</i> present; sparse barnacles. Patchy <i>Alaria</i> .
<b>Sublittoral Fringe</b>	Dominated by <i>Alaria esculenta</i> , <i>Laminaria digitata</i> or <i>L. saccharina</i> with sparse barnacles and encrusting Rhodophycota.
<b>Upper Infralittoral</b>	Kelp forest.
<b>Lower Infralittoral</b>	Sparse or no kelp, dominated by foliose algae except where grazed.
<b>Upper Circalittoral</b>	Dominated by animals with sparse foliose algae except where grazed.
<b>Lower Circalittoral</b>	Dominated by animals with no foliose algae but encrusting Rhodophycota patchy in grazed areas.

**Substratum or habitat types:**

The substratum types defined below are categories which may support distinctive biotopes or that certain species favour or are characteristic of. These categories are modified from the Wentworth and Folk classifications. Distinctive habitats that are not directly linkable to substratum, but which hold or may hold distinctive biotopes or particular species, are included. The habitats listed are based in part on the descriptive term used for the names of biotopes in the MNCR biotopes classification.

<b>Term</b>	<b>Definition</b>
<b>Bedrock</b>	Any stable hard substratum, not separated into boulders or smaller sediment units. Includes soft rock-types such as chalk, peat and clay.
<b>Large to very large boulders</b>	>512 mm. Likely to be stable.
<b>Small boulders</b>	256 - 512 mm. May be unstable.
<b>Cobbles</b>	64-256 mm. May be rounded to flat. Substrata that are predominantly cobbles.
<b>Pebbles</b>	16-64 mm. May be rounded to flat. Substrata which are predominantly pebbles.
<b>Gravel / shingle</b>	4-16 mm Clean stone or shell gravel including dead maerl.
<b>Maerl</b>	Live maerl. <i>Phymatolithon calcareum</i> and <i>Lithothamnion corallioides</i> in Britain and Ireland.
<b>Muddy gravel</b>	10 - 80 % gravel, 20 - 90 % mud.
<b>Coarse clean sand</b>	0.5 - 4 mm. > 90 % sand.
<b>Fine clean sand</b>	0.063 - 0.5 mm. >90 % sand.
<b>Sandy mud</b>	50 - 90 % sand, 10 - 50 % mud.
<b>Muddy sand</b>	50 - 90 % mud, 10 - 50 % sand.
<b>Mud</b>	<0.063 mm (silt / clay fraction).
<b>Mixed</b>	Mixtures of a variety of sediment types. Pebble / gravel / sand / mud.
<b>Algae</b>	Macroalgae surfaces, such as <i>Laminaria</i> spp., or fucoids.
<b>Other species</b>	The surface of other species, e.g. shells or carapace.
<b>Biogenic reef</b>	An elevated structure on the seabed built by calcareous or other concretion-forming organisms, or by chemical precipitation (Hiscock, 1996a). For example by <i>Modiolus modiolus</i> or <i>Sabellaria alveolata</i> .
<b>Artificial</b>	E.g. wood, metal or concrete
<b>Water column</b>	Pelagic
<b>Salt marsh</b>	A flat, poorly drained coastal swamp inundated by most high tides (Lincoln <i>et al.</i> , 1998).
<b>Strandline</b>	A line on the shore composing debris deposited by a receding tide; commonly used to denote the line of debris at the level of extreme high water (Lincoln <i>et al.</i> , 1998).
<b>Seagrass</b>	Habitat associated with seagrass bed communities.
<b>Under boulders</b>	Habitat associated with the underside of boulders.
<b>Crevices / fissures</b>	Narrow openings (Thompson, 1995).
<b>Rockpools</b>	A pool of water among rocks left behind by the ebbing tide.
<b>Caves</b>	A large hollow in the side of a vertical rock face or cliff.
<b>Overhangs</b>	An overhanging part of a rock formation (Thompson, 1995).
<b>No preference</b>	

**Wave exposure (from Hiscock 1990):**

<b>Term</b>	<b>Definition</b>
<b>Extremely exposed</b>	Open coastlines which face into the prevailing wind and receive both wind-driven waves and swell without any offshore obstructions such as islands or shallows for several thousand kilometres and where deep water is close to the shore (50 m depth contour within about 300 m).
<b>Very exposed</b>	1) Open coasts which face into prevailing winds and which receive wind-driven waves and oceanic swell without any offshore obstructions for several hundred kilometres, but where deep water is not close to the shore (50 m depth contour further than about 300 m) 2) Open coasts adjacent to extremely exposed sites but which face away from prevailing winds.
<b>Exposed</b>	1) Coasts which face the prevailing wind but which have a degree of shelter because of extensive shallow areas offshore, offshore obstructions, or a restricted (less than 90°) window to open water. These sites are not generally exposed to large waves or regular swell. 2) Open coasts facing away from prevailing winds but with a long fetch, and where strong winds are frequent.
<b>Moderately exposed</b>	Generally coasts facing away from prevailing winds and without a long fetch, but where strong winds can be frequent (from Hiscock, 1990).
<b>Sheltered</b>	Coasts with a restricted fetch and/or open water window. Coasts can face prevailing winds but with a short fetch (< 20 km) or extensive shallow area offshore, or may face away from prevailing winds.
<b>Very sheltered</b>	Coasts with a fetch less than about 3 km where they face prevailing winds or about 20 km where face away from prevailing winds, or which have offshore obstructions such as reefs or a narrow (< 30° open water window.
<b>Extremely sheltered</b>	Fully enclosed coasts with a fetch of no more than about 3 km.
<b>Ultra sheltered</b>	Fully enclosed coasts with a fetch measured in tens or at most a few hundred metres.

**Water flow rate:**

The horizontal movement of water associated with the meteorological, oceanographical and topographical factors. High water flow rates result in areas where water is forced through or over restrictions for example narrows or around protruding offshore rocks. Tidal streams are associated with the rise and fall of the tide where as currents are defined as residual flow after the tidal element is removed (McLeod, 1996).

<b>Term</b>	<b>Definition</b>
<b>Very strong</b>	> 6 knots (>3 m/sec.)
<b>Strong</b>	3 to 6 knots (1.5-3 m/sec.)
<b>Moderately strong</b>	1 to 3 knots (0.5-1.5 m/sec.)
<b>Weak</b>	< 1 knot (<0.5 m/sec.)
<b>Very weak</b>	negligible



**Salinity:**

<b>Term</b>	<b>Definition</b>
<b>Full salinity</b>	30-40 psu
<b>Variable salinity</b>	18-40 psu
<b>Reduced salinity</b>	18-30 psu
<b>Low salinity</b>	<18 psu
<b>Unknown Salinity</b>	?

**Migration:**

Periodic movement of organisms between alternative habitats e.g. between areas for reproduction and one or more areas non-reproductive activity, or between areas of foraging and areas used for other activities. Most migrations occur at predictable intervals triggered by stimuli e.g. un-favourable conditions. **NB:** Movements that do not include an obligatory return journey are classified as dispersal (Baretta-Bekker *et al.*, 1992).

<b>Term</b>	<b>Definition</b>
<b>Resident / Non-migratory</b>	Remaining within the same area (from Lincoln <i>et al.</i> , 1998).
<b>Seasonal (feeding)</b>	A seasonal migration for the purpose of following or moving to suitable feeding grounds.
<b>Seasonal (reproduction)</b>	A seasonal migration in order to reproduce.
<b>Seasonal (environment)</b>	A seasonal migration in order to remain with suitable environmental conditions.
<b>Diel</b>	Daily, pertaining to a 24 hour period.
<b>Passive</b>	A migration undertaken through the effects of tide, current or wind.
<b>Active</b>	A migration undertaken by active movement across the substratum or through the water column.

**Reproductive type / life history:**

<b>Term</b>	<b>Definition</b>	
<b>Budding</b>	A form of asexual multiplication in which a new individual begins life as an outgrowth from the body of the parent. It may then separate to lead an independent existence or remain connected or otherwise associated to form a colonial organism (Barnes <i>et al.</i> , 1993).	
<b>Vegetative</b>	Development by somatic growth. Vegetative reproduction is, therefore, an asexual processes occurring as a result of fragmentation, division or budding from the parent organism.	
<b>Parthenogenesis</b>	A form of asexual multiplication in which the ovum develops into a new individual without fertilisation (Barnes <i>et al.</i> , 1993).	
<b>Self-fertilization</b>	Selfing or autogamy. Fertilization of a female gamete by a male gamete produced by the same individual.	
<b>Fission</b>	A form of asexual multiplication involving division of the body into two or more parts each or all of which can grow into new individuals (Barnes <i>et al.</i> , 1993).	
<b>Permanent hermaphrodite</b>	Capable of producing both ova and spermatozoa either at the same time (Barnes <i>et al.</i> , 1993).	
<b>Protandrous hermaphrodite</b>	A condition of hermaphroditism in plants and animals where male gametes mature and are shed before female gametes mature (Holmes, 1979).	
<b>Protogynous hermaphrodite</b>	A condition of hermaphroditism in plants and animals where female gametes mature and are shed before male gametes mature (Holmes, 1979).	
<b>Gonochoristic (dioecious)</b>	Having separate sexes (Barnes <i>et al.</i> , 1993).	
<b>Alternation of generations</b>	The alternation of generations, in the life cycle of an organism, that exhibit different modes of reproduction; typically sexual (diploid) and asexual (haploid) phases. Also termed metagenesis (Lincoln <i>et al.</i> , 1998).	
<b>Gamete Type</b>	<b>Isogamous</b>	Having gametes of similar size, shape and behaviour. (Lincoln <i>et al.</i> , 1998).
	<b>Anisogamous</b>	Having flagellate gametes of different size, shape or behaviour (from Bold, 1977 and Lincoln <i>et al.</i> , 1998).
	<b>Oogamous</b>	Having large, non-motile eggs and small motile sperm. Usually applied to algae (Lincoln <i>et al.</i> , 1998).

**Frequency of reproduction:**

<b>Term</b>	<b>Definition</b>
<b>Semelparous</b>	Breeding only once then dying (Barnes <i>et al.</i> , 1993).
<b>&lt; Biannual</b>	Breeds less frequently than every two years.
<b>Biannual episodic</b>	Breeds every second year but in one or more discrete periods initiated by some trigger (for example a lunar cycle).
<b>Biannual protracted</b>	Breeds once every two years over an extended or drawn out period.
<b>Annual episodic</b>	Breeds every year but in one or more discrete periods initiated by some trigger (for example a lunar cycle).
<b>Annual protracted</b>	Breeds every year over an extended or drawn out period.

**Developmental mechanism:**

<b>Term</b>	<b>Definition</b>
<b>Spores</b>	A plant reproductive cell capable of developing into a new individual, directly or after fusion with another spore. Spores may be produced either by meiosis or mitosis (Lincoln <i>et al.</i> 1998).
<b>Oviparous</b>	A type of reproduction in animals in which the fertilised eggs are laid or spawned by the mother.
<b>Planktotrophic</b>	Feeding at least in part on materials captured from the plankton (Barnes <i>et al.</i> , 1993).
<b>Lecithotrophic</b>	Development at the expense of internal resources (i.e. yolk) provided by the female (Barnes <i>et al.</i> , 1993).
<b>Direct development</b>	Development without a larval stage (Barnes <i>et al.</i> , 1993)
<b>Ovoviviparous</b>	A type of reproduction in animals in which the embryo(s) develop in persistent membranes and hatch within the maternal body. No nutrition is derived from the mother.
<b>Viviparous</b>	A type of reproduction in animals in which the embryo(s) develop within and derive nourishment from the maternal body.

**Management regime:**

<b>Regime</b>	<b>Definition</b>
<b>Quota or take limited by numbers</b>	Restrictions based on limits to the numbers of individuals taken. For example the 'Total Allowable Catch' system applied to fisheries in the EU
<b>Quota or take limited by effort</b>	Restrictions based on limits to the numbers of individuals/boats/nets etc doing the collecting or the amount of time spent collecting.
<b>Restriction of movements of this species</b>	Limiting the movements / transportation of a species in order to prevent its spread/ colonisation etc. where it may be undesirable
<b>Restriction of movements of likely hosts of this species</b>	Limiting the spread/ colonisation etc. of a species to where it may be undesirable by restricting the movements / transportation of its host(s)
<b>Technical restriction in methods of collection</b>	Restrictions such as limiting the size of individuals taken, for example mesh size of nets.
<b>Habitat conservation - maintenance</b>	Efforts to preserve the habitat or environment in its current state.
<b>Habitat conservation - enhancement</b>	Efforts to improve the condition of the habitat or environment, restoration to its original state.
<b>Re-introduction</b>	Deliberate re-introduction by human intervention of a species to an area within its natural geographical range but where it has become extinct in historical times.
<b>Ex-situ breeding</b>	Safeguarding the existence of a population through breeding programmes outside of its natural habitat e.g. captive breeding programmes.

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