

# GLOSSARY of PELAGIC BIOGEOGRAPHY

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This glossary of terms applicable to Pelagic Biogeography has been prepared as part of the work of SCOR Working Group 93, "Pelagic Biogeography." The decision to prepare such a glossary was made at the first meeting of the Working Group at Amsterdam, 6 - 8 November, 1990. The need to more clearly communicate and utilize common concepts and terminology was in fact evident at the First International Conference on Pelagic Biogeography, where it was not clear that workers were using such essential terms as "biogeography" to convey the same meaning. This Glossary is one attempt by Working Group 93 to address that problem.

The terms are given in alphabetical order in English with a Spanish translation of the term only when the term and/or the spelling is different. An alphabetical list of Spanish terms is given at the end of this document. The descriptions are given only in English. This list can thus also serve as a dictionary for Spanish speaking people to find the right term in English.

In preparation of this Glossary we have cast our net broadly and include terms applicable in aquatic biogeography *sensu lato*, including freshwater and coastal ecosystems.

Please note the following abbreviations, used widely:

- cf*      *confer*: compare with definitions of terms that follow;
- eg*      *exempli gratia*      for example;
- qv*      *quod vide*: definition for indicated (preceding) term will extend and clarify the present definition;
- syn*      synonym

We have not attempted to list names, much less diagnoses, for the taxonomic groups that are the principal players in pelagic biogeography nor the proper names of pelagic biogeographic regions or provinces as used by various authors. To have done so would

have greatly increased the size of the Glossary, we believe to the detriment of its usefulness.

Every term we list can be found in use in the literature and defined elsewhere. We have invented nothing, save our own interpretation. The usefulness, if any, of this work is our deliberate effort to bring together terms from what are in fact connected but commonly disparate disciplinary areas - biological oceanography, phylogeny, ecology, physiology, ichthyology, evolutionary biology, physical oceanography, chemical oceanography, biogeography, meteorology, and others. We thank our colleagues for their help in improving this work. The choices and omissions, deliberate or not, as well as the errors, are our own.

*“When I use a word,”* Humpty Dumpty said in rather a scornful tone, *“it means just what I choose it to mean—neither more nor less.”*

Lewis Carroll (1832–98), English author, mathematician. Through the Looking-Glass, ch. 6 (1872).

## A

**abiotic factors****factores abióticos**

- (1) Physical or chemical parameters "forcing" (*cf* forcing functions) distribution patterns.  
(2) Nonliving forces or situations controlling or influencing the dynamics of living systems.

**abundance****abundancia**

Ecology: A measure of population density, the number, mass or weight of organisms present in a defined area or volume (*cf* standing crop / standing stock; P/B ratio).

**Abyssal****abisal**

- (1) Pertaining to the zone of modal ocean basin depth, below 2000 m, lying seaward to and deeper than the bathyal (*qv*) zone.  
(2) Encompassing the ocean floor at depths between 2 and 6 km.

**abyssal circulation****circulación abisal**

Applies to large-scale oceanic water movement, density-driven, at depths between 2 and 6 km.

**abyssobenthic****abisobético**

A subdivision of the oceanic benthic environment at depths between 2 and 6 km.

**abyssopelagic****abisopelágico**

A subdivision of the oceanic pelagic environment occupying the strata between 2 and 6 km.

**accepted name****nombre aceptado**

Taxonomy: A name adopted by an author as the correct name for a taxon.

**accidental species****especie accidental**

Rare species in a community (*cf* Braun-Blanquet classification), either chance invaders from another community or relicts from a previous community (*cf* exclusive, indifferent, preferential, or selective species).

**Acclimation****aclimatación**

Response of an animal that enables it to tolerate a change in a single factor in its environment (*eg* temperature). (*cf* acclimatization).

**acclimatization**

**aclimatación transitoria**

A reversible adaptive response that enables an organism to tolerate environmental change (*eg* seasonal climatic change).

**actic**

Of or pertaining to littoral rocky shores as habitat.

**action spectrum**

**espectro de acción**

Graphic depiction of the efficiency of different wave lengths of light in promoting a given photoresponse (*eg* in photosynthesis or phototropism).

**active pool**

**existencia activa**

A component of a biogeochemical (*qv*) cycle in which the nutrient or active substance exchanges rapidly between the biotic and abiotic components - usually smaller or much smaller than the reservoir pool (*qv*).

**adaptation**

**adaptación**

(1) The condition of showing fitness (*qv*) for a particular environment, as applied to the characteristics of a structure, function, or entire organism.

(2) The process by which fitness is acquired.

**adaptive peaks and valleys**

**valles y picos adaptativos**

Symbolic contour map showing relative Darwinian fitness or adaptive value of genotypic characters or characteristics, represented by adaptive peaks (high fitness) and valleys (low fitness).

**adaptive radiation**

**radiación adaptativa**

(1) Evolutionary divergence of members of a single phyletic line into a series of rather different niches or adaptive zones.

(2) A burst of evolution with rapid divergence from a single ancestral form resulting in exploitation of an array of habitats (*cf* tachytelic, punctuated equilibria).

**adaptive zone**

**zona adaptativa**

Comprises the "living space" of a taxon in the associated environmental regime or regimes, habitat or niche. The adaptive specialization that fits the taxon to the given environmental circumstances may be broad or narrow (*eg* stenophagy *vs* omnivory).

**adjacently sympatric**

**simpátrico adyacente**

Of or pertaining to those aspects of a parapatric (*qv*) speciation event whereby the daughter species are minimally isolated geographically.

**admissible**

Taxonomy: The form of a name which can be validly published and the use of a name in accordance with provisions of the applicable international code, such as the ICZN (*qv*) for animals.

**adnate**

**adnato**

Closely applied to; growing on; attached along entire length.

**advection**

**advección**

- (1) Mass motion in the atmosphere or ocean. In the ocean, the transport of water due to wind forcing or density driven circulation.  
(2) The transport of organisms or materials by large-scale water movement.  
(*cf* upwelling, convection).

**affinity index**

**índice de afinidad**

Measure of the relative similarity of the composition of two samples. Reciprocal affinity is a measure of distance.

**age class**

**clase de edad**

A category comprising individuals of a given age within a population; a cohort.

**age-specific death rate**

**tasa de mortalidad específica**

The death rate for a given age class in a population calculated as the number dying in age class x divided by the number that attain age class x; designated by  $l_x$ .

**age-specific fecundity rate**

**tasa de fecundidad específica**

The average number of female young per female produced per unit time by an individual of specified age; designated by  $m_x$ .

**agamospecies**

**especie agámica**

Species which replicate asexually.

**aggregated**

**agregado**

A contagious distribution (*qv*) in which values, observations or individuals are more clustered or grouped together than in a random (*qv*) distribution, indicating that the presence of one organism or value increases the probability of another occurring nearby. Also known as overdispersion (*qv*).

**aggregates**

**agregados**

- (1) Oceanography: Inorganic or organic clumping of particles, with or without associated living organisms (*cf* marine snow).  
(2) Ecology: A group of individual items (soil particles, organisms, etc.) occurring together in a cluster, in which the average inter-individual distance within the cluster is significantly less than the average inter-individual distance outside of the cluster.

**aggregation**

**agregación**

- (1) The process of forming an aggregate or cluster.
- (2) A synonym for cluster.
- (3) A group of organisms that is formed when individuals are attracted or limited to a patchily distributed environmental resource (*cf* patchiness).

**agium**

Of or pertaining to a beach community.

**agonistic behavior**

**comportamiento antagónico**

Describes behavioral interaction between two rival organisms of the same species that may involve aggression, threat, appeasement, or avoidance, often involving stereotyped or ritual behavior.

**air-sea interface**

**interfase aire-agua**

The zone of contact between atmosphere and marine hydrosphere.

**aktological**

Of or pertaining to shallow inshore environments and communities.

**albedo**

**albedo**

Reflectivity (*eg* of the earth, atmosphere, sea surface, land surface) measured as a percentage of incident solar radiation.

**algorithm**

**algoritmo**

A finite series of logical steps or instructions by which a particular numerical or algebraic problem can be solved.

**alleles**

**alelos**

The set of alternative gene forms at a given chromosomal locus.

**allelopathy**

**alelopatía**

Release by an organism of a chemical substance into the environment that acts as an inhibitor to the germination or growth of another organism. Most common among plants and protists.

**allochoric**

**alocórico**

Occurring in two or more communities within a given geographical region.

**allochronic speciation**

**especiación alocrónica**

(1) Neontology: Speciation without geographical separation through the acquisition of different breeding seasons or patterns.

(2) Paleontology: Speciation occurring by the sequential replacement of species through time.

**allochronic species**

**especie alocrónica**

Paleontology: Species which do not occur at the same time level (*cf* synchronic species).

**allochthonous**

**alóctono**

Not indigenous or native; acquired. May apply to species, food or nutrient input, or to sediment transported to be deposited within the system of reference.

**allometry**

**alometría**

Differential rate of growth such that size of one part (or more) of the body changes in proportion to another part of the body or the whole, but at a constant exponential rate.

**allopatric speciation**

**especiación alopatrásica**

Species formation during geographical isolation (*cf* sympatric speciation, centrifugal speciation), as a result of fragmentation of the original breeding population and subsequent genetic divergence of daughter populations (*cf* parapatric, dichopatric).

**allopatry**

**aloatria**

(1) The condition of species or populations occupying mutually exclusive (but often adjacent) geographic areas (*cf* sympatry).

(2) Applied to species that occupy separate habitats and do not co-occur as breeding adults in nature.

**allotopic**

**alotópico**

Used of populations or species that occupy different macrohabitats (*cf* syntopic).

**allotype**

**alotipo**

Taxonomy: A paratype of different sex than the holotype and designated by the original author; has no formal ICZN status.

**allozyme**

**alozima**

Genetics: alternative forms of alleles at the same locus.

**allozyme frequency**

**frecuencia alozímica**

Allozyme frequency is the total number of times a given allozyme is detected among individuals in a sample, divided by sample size. By "one gene, one enzyme", allozyme frequency (where detectable and not modified by nongenetic factors) provides a direct index of allelic frequency at a given locus.

**alpha taxonomy**

**taxonomía descriptiva**

Descriptive taxonomy (*qv*), concerned primarily with the recognition and description of species, usually on the basis of morphological characters.

**altricial**

Used of offspring or species that show a marked delay in the attainment of independent self maintenance. (*cf* precocial).

**ambit**

**ámbito**

The daily, seasonal or lifetime geographic range of an organism.

**amensalism**

**amensalismo**

Interaction of species populations in which one population is inhibited whilst the other population is unaffected by the interaction (*cf* commensalism, competition, mutualism, neutralism, parasitism, predation, and protocooperation). Classic example: an elephant stepping on the nest of a ground-dwelling bird. Better example: trophic group amensalism as in bioturbation effects inhibiting settlement of benthic suspension feeders.

**amictic**

**amíctico**

Referring to a lake that has no overturn whatever because it is perennially frozen.

**amphi-**

**anfi-**

Prefix meaning both, as in amphi-American, species or higher taxa occurring in both the eastern Pacific and western Atlantic, *ie* both sides of the American land mass.

**amphitropical**

**anfitropical**

See antitropical.

**anadromous**

**anádromo**

Animals that spawn in freshwater but spend most of their lives in seawater, *eg* salmon (*Oncorhynchus*, *Salmo*).

**anagenesis**

**anagénesis**

(1) Referring to evolutionary advance (*cf* grade).

(2) Any evolutionary change along a single, unbranching lineage (*cf* cladogenesis).

**analogous**

**análogo**

Describes a feature or character state in two taxa which can be functionally similar or virtually identical (at least superficially) but which cannot be traced back to the same feature or character state in any common ancestor. Analogous features commonly derive from convergence or homoplasy (*cf* homologous). The feature or character state itself is termed an analogy.

**ancestral character state**

**estado de carácter ancestral**

**Phylogeny:** the known or presumed primitive state (*qv*) characteristic of the sister outgroup (*qv*) to the group of interest, (*cf* plesiomorphous).

**anomaly**

**anomalía**

(1) Statistics: Abnormal feature or characteristic, departing from mean or expected value.  
(2) Oceanography: Departure from mean state. Various kinds of anomalies are widely used in oceanographic or geophysical measurements, *eg* magnetic anomalies are measurable additions to or subtractions from the expected local magnetic field due to "fossil magnetic effects" related to polarization reversals of the earth's field. These effects helped demonstrate seafloor spreading.

**anoxic**

**anóxico**

The absence of free diatomic oxygen, O<sub>2</sub>. As used in the pelagic literature, also applies to large hypoxic (*qv*) water masses in which free oxygen may be at or below the threshold of field detectability but in which hydrogen sulfide is not detectably present (*eg* Eastern Pacific, Arabian Sea).

**antarctic**

**antártico**

Zone of the Antarctic (Southern) Ocean and the continent of Antarctica, including the subantarctic and south Subtropical Convergence (*qv*); extending from the continental margin northward to about 40°S, the approximate limit of northward ice drift.

**anticyclone**

**anticiclón**

Referring to an area of above average pressure (high pressure cell) in the ocean or atmosphere, characterized by generalized downwelling within the central region of the cell. The circulation pattern is such that when visualized from above, motion of a particle on the right side is southward in the Northern Hemisphere (clockwise) and northward in the Southern Hemisphere (*cf* cyclonic, gyre).

**antitrade wind**

**viento antialisio**

Upper altitude wind in low latitudes that flows counter (poleward) to the lower altitude trade wind (*qv*).

**antitropical species**

**especie antitropical**

Species occurring in the north and/or south subtropical and/or temperate zones but absent in the intervening tropical (equatorial zone). Biantitropical (or amphitropical) is used to describe this condition for the same species in both hemispheres.

**aphotic zone**

**zona afótica**

The depths of the ocean in which there is no sunlight, in which the only light present is produced by bioluminescent organisms.

**apomorphous**

**apomorfo**

Phylogeny: Evolutionarily advanced (derived) character state. Applied to features shared by a group of organisms that distinguish these organisms from others. The term means "new featured" (*cf* derivative).

**archibenthic**

**arquibéntico**

Pertaining to the benthic environment and benthos of the continental slope between 65 and 1050m; the upper part of the abyssal zone.

**archipelago**

**archipiélago**

A group of islands.

**Arctic Ocean**

**Océano Ártico**

Smallest and shallowest (mean depth = 1,205 m) of the world's five main ocean basins. Area = 14,090,000 km<sup>2</sup>. The shallowness is related to the extreme width of the surrounding continental shelves, up to 1,700 km wide. Covered by floating pack ice, up to 3 to 4 m thick, over much of its surface.

**area cladogram**

**cladograma de área**

A cladogram (*qv*) in which area names are substituted for species names (*cf* OTU). Steps in construction: (1) erect cladogram, (2) determine distribution of component OTU's, (3) substitute the names of areas occupied by those OTU's into the cladogram, (4) find the most parsimonious set of events accounting for the correspondence (and differences) between the phylogenetic and geographic cladograms.

**arenicolous**

**arenícola**

Living in sand; psammic.

**Artenkreis**

**círculo de especies**

A group of closely related species distributed as a partially overlapping mosaic within a geographic area.

**artificial classification**

**clasificación artificial**

Taxonomy: A classification based on characters of convenience, without regard to hypothetical phylogenetic relationships. Example: key to flora by color of flowers (*cf* natural classification).

**assemblage**

**conjunto**

Ecology: Collection of plants and/or animals characteristically associated with a particular environment. Presence of the assemblage is commonly used as an indicator of that environment (*cf* random assemblage).

**assemblage zone**

**zona de conjunto**

Paleontology: Stratigraphic unit or local level (horizon) of stratigraphic unit characterized by an assemblage of plants and/or animals.

**association**

**asociación**

See assemblage.

**Atlantic Ocean**

**Océano Atlántico**

One of the main oceanic areas of the world. Area = 82,441,000 km<sup>2</sup>. It is relatively (on average) shallow (3,310 m), warm (3.73° C) and most saline (34.90 ppt), of the three warmwater oceans.

**atoll**

**atolón**

An island structure in the tropics or subtropics consisting of low sand islands with fringing or barrier coral reefs in a more or less ringlike structure surrounding a lagoon.

**Aufwuchs**

**perifiton**

See periphyton.

**austral**

Southern. Pertaining to zonal areas south of the equator, usually applied to the temperate zone, especially the cold temperate (*cf* boreal).

**Australasian Region**

**Australasia**

A biogeographic realm indicating principally Southeast Asia, New Guinea, Australia and adjacent islands and coastal seas. Also applied to oceanic communities over semi-isolated basins and seas in this area.

**autapomorph**

**autopomorfía**

Phylogeny: An apomorphous (*qv*) character state that is unique to a particular species or lineage in the group under consideration.

**autecology**

**autoecología**

The study of individual organisms and populations, including demography, physiological ecology, behavior, and their relation to their environment. Usually applied to the study of a single species (*cf* synecology).

**autochthonous**

**autóctono**

(1) Geography: Native in the sense of having originated (evolved) in the place in question.

(2). Ecology: Indigenous or native. Applied to species, food or nutrient input, or sediment that was both produced and deposited within the area of reference.

**autopotamic**

Organisms adapted to streams and completing their life cycles in streams.

**autotrophic**

**autotrófico**

Organisms (some prokaryotes, some protists, most plants) capable of utilizing light energy and simple inorganic compounds and elements to produce energy-rich organic molecules, thus commonly referred to as primary producers (*cf* primary production).

**autumnal**

**otoñal**

Of or pertaining to autumn, that period of the year between the autumnal equinox and the winter solstice (in the Northern Hemisphere from about September 21 to about December 21) (*cf* vernal).

**auxotrophic**

**auxotrófico**

Situation whereby some primary producers require external "growth factors" or "vitamins", complex organic molecules, for growth (*eg* dinoflagellates).

## B

**bacterioneuston**

**bacterioneuston**

The bacterial component of the neuston (*qv*).

**bacterioplankton**

**bacteriplancton**

Bacterial plankton (*qv*).

**balanced polymorphism**

**polimorfismo balanceado**

Polymorphism (*qv*) in which the genetically distinct forms are more or less permanent components of the population, where maintained by selection as in selective superiority of the heterozygote over both homozygotes (*cf* genetic polymorphism).

**baroclinic**

**barooclínico**

Condition in the ocean or atmosphere in which surfaces of constant pressure (isobaric) and constant density are not parallel, but intersect.

**barotropism**

**barotropismo**

Orientation or change of direction in an organism in response to a pressure stimulus.

**barrier**

**barrera**

Any physical (or biological) object or condition obstructing free interchange along what would otherwise be an open corridor. Barriers may be more effective for some functional or taxonomic groups than others (*cf* pathway, corridor).

**basin**

**cuenca**

**Geography:** A concavity in the earth's surface, a low point surrounded on all sides by higher (shallower) ground. Sill depth marks the maximum depth below the water's surface (or minimum altitude above the basin floor) of connection between the basin and other areas of the earth's surface.

**bathyal zone**

**zona batial**

A subdivision of the oceanic benthic environment encompassing the zone between 200 - 2000 m, roughly the zone of the continental margin (*cf* shelf break, slope, rise).

**bathymetry**

**batimetría**

Measurement of oceanic depths, principally to delineate topography.

**bathypelagic**

**batipelágico**

(1) Zone of pelagic oceanic environment extending from 1000 m to top of abyssopelagic (2000 m) where the latter zone is recognized.

(2) Zone of pelagic oceanic environment in which diel changes in sunlight are absent or of insufficient excursion to cue diel vertical migration. Part of the aphotic (*qv*) zone.

**Beaufort Scale**

**escala de Beaufort**

Table of values from 0 to 12 for describing wind strength, where each force value has a definable effect on observed sea state.

**benthic**

**bético, bentónico**

Of or pertaining to the bottom of the ocean.

**benthic boundary region**

That stratum of water extending upward from the bottom to that depth where the bottom has virtually no effect upon water movement (*cf* nepheloid layer).

**benthopelagic**

**bentopelágico**

Pelagic organisms living in ecological association with the bottom, not on it or in it, but influenced by it and coactively interacting with components of the bottom community.

**benthos**

**bentos**

In freshwater and marine ecosystems, the assemblage of organisms attached to, resting on, moving on or in, or living within the bottom substratum/sediments (adjectival form: benthic)(*cf* demersal, infauna, epifauna).

**Bergmann's Rule**

**ley de Bergmann**

The observation that the body size of homiothermic animals in a single closely-related evolutionary line increases along a gradient of warm to cold temperatures, relating to heat loss or gain and the ratio of body surface area to volume.

**Beringia**

Area comprising the Bering Strait and adjacent areas of Siberia and Alaska, which, at various times, relating to changes in sea level, provided a land or alternately a water route for the dispersal of organisms.

**bet-hedging**

Ecology: A life history "strategy" such as iteroparity in which an organism apportions its efforts or resources, such as reproductive output, so that one or a few "good years" may balance or exceed the results of a number of "bad" or mediocre years. Example: interparous reproduction and distribution of reproductive value among forms such as pelagic clupeoids.

**beta taxonomy**

**taxonomía beta**

The arrangement of species into hierarchical systems of taxa at higher category rank.

**biantitropical**

See antitropical species.

**bioacoustics**

**bioacústica**

(1) Study of the production and use of sound by living organisms.  
(2) Use of sound (sonar, transponders, etc.) to study aspects of the functioning of living organisms *in situ*. Studies carried out are principally distribution, relative abundance and behavior of these organisms.

**bioassay**

**test biológico**

Measurement of quantity or intensity of an action based on quantitative assessment of organismal response.

**biocoenosis**

**biocenosis**

(1) An assemblage (*qv*) of organisms associated with a specific habitat type (*cf* thanatocoenosis).  
(2) The living part of a biogeocoenosis, comprising the phytocoenosis (autotrophs), zoocoenosis (heterotrophs), and microbiocoenosis (decomposers).

**biogenesis**

**biogénesis**

(1) Evolution: Principle that a living organism can arise only from another living organism (*cf* spontaneous generation).  
(2) Geology: The formation of any substance from or by living organisms, *eg* coal, petroleum, limestone, oceanic oozes, etc.

**biogenic sediment**

**sedimento biogénico**

A sediment of which 30% or more is produced by the activities of living organisms, *eg* limestone, radiolarian ooze, foraminiferan ooze etc.

**biogeny**

**biogenia**

Evolution of organisms, comprising ontogeny (*qv*) and phylogeny (*qv*).

**biogeochemical cycle**

**ciclo biogeoquímico**

Movement of chemical elements from organism to physical environment to organism in more or less cyclic pattern. Termed nutrient cycle(s) where element(s) or compound(s) act as nutrients (*qv*).

**biogeographic boundary**

**límite biogeográfico**

- (1) The various disjunctive groupings of plants and animals are usually delimited by one or more barriers to migration which act to prevent faunal and/or floral mixing. The location of such barriers determines or defines boundaries.
- (2) Zones of most rapid change in species composition per unit distance traveled.

**biogeographical province**

**provincia biogeográfica**

Biological subdivision of the earth's surface, usually based on taxonomic rather than ecological criteria, and embracing both faunal and floral characteristics. The concept is usually not rigorously nor quantitatively defined, and often varies from authority to authority in defining criteria and extent.

**biogeographical region or realm (oceanic)**

**región biogeográfica (oceánica)**

See above. Major regions (consensus lacking, terminology variable):

EQUATORIAL (tropical): Atlantic, Indian, western and central Pacific, Eastern Tropical Pacific.

CENTRAL (subtropical): North and South Atlantic, South Indian, North & South Pacific.

SUBARCTIC: North Atlantic and Pacific.

TRANSITION: North and South eastern Pacific

SUBTROPICAL CONVERGENCE: South Atlantic, South Indian , South Pacific

SUBANTARCTIC and ANTARCTIC: Southern Ocean

**biogeographical region or realm (terrestrial)**

**región biogeográfica (terrestre)**

A collection of provinces, usually placed at the apex of the biogeographical hierarchical classification. Major terrestrial regions usually recognized: Antarctic, Australasian, Ethiopian, Nearctic, Neotropical, Oceania, Oriental and Palearctic. Holarctic = Palearctic + Nearctic.

**biogeography**

**biogeografía**

Study of the distribution of organisms, both single species and assemblages. Includes both historical (systematics, phylogeny, evolution) and ecological approaches to understanding distributional patterns.

**bioherm**

**bioherma**

(1) Paleontology: A moundlike accumulation of fossil remains on the site where organisms lived.  
(2) Ecology: Any organism contributing to the formation of an organic reef, such as a coral reef.

**biological accommodation**

**acomodación biológica**

The notion that as diversity grows in a community, species become not only tolerant of but (in many cases) dependent upon the predictable occurrence of other species in the community. Concomitant concepts: niche diversification (*qv*) and community as "superorganism" (*cf* superorganism concept).

**biological magnification**

**magnificación biológica**

See food chain magnification.

**biological oceanography**

**oceanografía biológica**

Study of the biology of the oceans; *ie* organisms as part of living systems of the sea: contrasted with marine biology (*qv*).

**biological rhythm (rhythm)**

**ritmo biológico**

Spontaneous cyclic functions encountered at all levels of organization, cellular to ecosystem, with both endogenous (*qv*) and exogenous (*qv*) cues.

**biological tracer**

**trazador biológico**

Oceanography: Any living component of marine systems (or the immediate products or impacts of these components) that can be utilized in a Lagrangian (*qv*) sense to trace water movements.

**bioluminescence**

**bioluminiscencia**

Production of light by living organisms (*cf* luminescence).

**biomass**

**biomasa**

The total mass of living components (producers, consumers, decomposers) in an ecosystem at any one time. The mass (or weight) per unit volume of water or beneath a unitary area of sea surface. Also termed standing crop.

**biome**

**bioma**

A large climatic region containing a significant proportion of plants and animals with characteristic adaptations for that climate.

**biometrics**

**biometría**

The application of mathematical and statistical concepts to the analysis of biological phenomena; quantitative biology (biometry).

**biomonitoring**

**biomonitoreo**

Monitoring of environmental change by assessment of changes in organisms.

**biostratigraphy**

**bioestratigrafía**

Branch of stratigraphy (*qv*) that involves use of fossil plants and/or animals in the dating and correlation (*qv*) of the stratigraphic (layered) sequences of rock in which they are discovered. A zone is the fundamental division recognized by biostratigraphers.

**biota**

The flora and fauna of a region.

**biotic factors**

**factores bióticos**

Pertaining to biological effects on the environment, *eg* oxygen production by phytoplankton; oxygen utilization by bacteria and animals resulting in oxygen minimum zones.

**biotope**

**biotopo**

Environmental region and/or regime populated by a characteristic biota or community.

**bioturbation**

**bioturbación**

The mixing of a sediment by the burrowing, feeding or other activity of living organisms, particularly benthic infauna. Forming a bioturbated sediment may lead to trophic group amensalism (*qv*) as in inhibition of growth of suspension feeders by heavily turbating deposit feeders.

**bipolarity**

**bipolaridad**

The presence in the Arctic and Antarctic of apparently identical species absent in intervening temperate and tropical regions.

**bloom**

**floración**

Ecology: Exponential growth through increase in numbers, typically in autotrophic (*qv*) protists (*eg* phytoplankton in spring bloom (outburst) conditions).

**boreal**

Northern. Pertaining to zonal areas north of the equator, usually applied to the temperate zone, especially the cold temperate (*cf* austral).

**bottleneck**

**cuello de botella**

Ecology: A sudden decrease in population size due to perturbation or dispersal, with concomitant reduction in genetic diversity, enhancing the probability of genetic drift effects.

**bottom water mass**

**masa de agua de fondo**

Water lying at the deepest part of the water column in the ocean, *eg* Antarctic Bottom Water.

**boundary current**

**corriente de margen**

Oceanography: Northward or southward directed ocean current flowing parallel and close to a continental margin, caused by deflection of eastward and westward transoceanic currents at the continental margin as well as the wind stress curl in that region.

**boundary region**

**región limítrofe**

In the pelagic, a zone where conditions change more rapidly (quantitatively undefined) than outside such zones, for example at the edge of boundary currents (*qv*) and at water mass boundaries (*qv*).

**brackish waters**

**aguas salobres**

Seawater containing an admixture of freshwater, generally from river runoff (*cf* estuary).

**bradytelic**

**braditélico**

Exceedingly slow rate of evolution (anagenetic or cladogenetic) manifested by slowly-evolving lineages which survive much longer than would be expected (on the basis of average duration of recognizable lineages) (*cf* anogenesis, cladogenesis, horotelic, tachytelic).

**Braun-Blanquet Classification**

**clasificación de Braun-Blanquet**

Ecology: Both a category of classification based on use of arithmetical similarity indices from counts of joint species occurrences in samples and a specific index ( $I_B = a/(a+b)$ ,  $b = c$ ). This index is now largely replaced in usage by such forms as the Czekanowski-Dice-Sorensen Index ( $I_{CDS} = 2a/[(a+b)+(a+c)]$ ). ( $a$  = number of species in common;  $b$  = number of species unique to first sample,  $c$  = number of species unique to second sample).

**browsing**

**hurgando**

See grazing.

**C**

**C-S-R triangle**

**triángulo C-R-S**

Ecology: a three-component system of life history strategies conceptualized as a triangle with the three extremes representing competitive species (C-strategists)(*qv*), stress-tolerant species (S-strategists)(*qv*), and ruderal species (R-strategists)(*qv*).

**C-strategist**

**estratega C, estratega competitivo**

Within the C-S-R (*qv*) triangle a species typically with large body size, rapid growth, relatively long life span, relatively efficient dispersal, devoting only a small proportion of metabolic energy to the production of offspring - a competitive species.

**caballing (cabbeling)**

Oceanography: (1) downward displacement (downwelling) of ocean surface water in regions where surface water masses converge (*cf* upwelling). (2) The mixing of two parcels of water with the same density but different temperature-salinity properties producing a mixture with a greater density than that of the constituents.

**camouflage (crypsis)**

**camuflaje, cripsis, mimetismo**

Coloration and/or body form that makes animals difficult to distinguish from their backgrounds, thus reducing predation. Light output may be used cryptically by pelagic luminescent organisms.

**canalization**

**canalización**

Evolution: (1) Developmental stability (inflexibility) where the same phenotype is produced in a wide range of genetic and environmental backgrounds. Development is such that all the different genotypes have a standard phenotype over the range of environments common to that species.

(2) Convergent evolution driven by restricted range of possible responses to environment, *eg* development of streamlined or fusiform body shape in fast-swimming organisms (*eg* tunas, pelagic sharks, ichthyosaurs, odontocete whales)

**carcinology**

**carcinología**

The study of crabs and other crustaceans.

**carnivorous**

**carnívoro**

Heterotrophic consumption of live animal matter; flesh-eating (*cf* omnivorous, herbivorous, detritivorous).

**carrying capacity**

**capacidad de carga**

Ecology: The maximum population of a given organism that a particular environment can sustain; the K (saturation) value for growth of a species population following the logistic (*qv*) (sigmoid) growth model.

**catadromous**

**catádromo**

Applied to migratory behavior of organisms that spend most of their lives in freshwater but travel to the sea to breed, *eg* the American and European eels (*Anguilla*) travel to the Sargasso Sea to spawn (*cf* diadromous, anadromous).

**category**

**categoría**

Taxonomy: The rank or level in the Linnean hierarchy to which a given taxon is assigned.

**center of origin**

**centro de origen**

A region, typically in the tropics, that exhibits the greatest diversity (species richness) within a taxon, and regarded as the region of origin of that taxon.

**center-of-origin/dispersal approach**

**hipótesis del centro de origen/dispersión**

Hypothesis that areas of evolutionary diversification (centers of origin) are sites of origin of new (apomorph, advanced) taxa that supplant (extirpate) preexisting (plesiomorph, primitive) taxa and spread outward via dispersal from the center of origin (*cf* generalized track/vicariance approach; cladistic biogeography).

**central gyre**

**vórtice central, giro central**

Oceanography: the anticyclonic (*qv*) circulation pattern in the subtropical regions of the open ocean basins (*cf* central region).

**central region**

**región central**

Oceanography: An area of sea surface underlain by one of the central principal upper water masses (*eg* North Atlantic Central, Indian Ocean Central, Eastern North Pacific Central, etc.).

**central water**

**agua central**

One of the principal central upper water masses, originating in winter by cooling of relatively salty subtropical surface water, sinking and mixing (to some extent), to form upper water masses between the main thermocline and the stratum of Antarctic Intermediate Water (where present: upper boundary of AAIW at about 800 - 1000 m).

**central-gyre species**

**especie de giro central**

A species limited to or most abundant within one of the main subtropical anticyclonic gyral systems.

**central-water mass areas**

Synonym of central region (*qv*).

**central-water species**

Synonym of central gyre species (*qv*).

**centrifugal speciation**

**especiación centrífuga**

The hypothesis that most speciation events occur as a result of the isolation of small peripheral populations at the edge of a much larger species "track" (range), resulting from both the much smaller population size and differential selection pressures in environments or areas at the extreme limits of the species range.

**cetology**

**cetología**

The study of cetaceans: whales, dolphins and porpoises.

**character**

**caracter**

Systematics/Evolution: Any detectable attribute or property of the phenotype of an organism. Character expression is often divided into continuous or discrete, quantitative or qualitative character states.

**character displacement**

**desplazamiento de caracter**

An increase in differences (often morphological) between two species where the species occur together, compared to the differences between them where they occur separately.

**character state**

**estado de caracter**

One of two or more expressions of the range of variation of a character (there are no univariate characters, in the simplest case a character is either present or absent, hence a minimum of two states (this reduction is often taxonomically uninteresting)). States may be discrete or continuous, quantitative or qualitative, and may involve any feature whatever expressed by the organism (*cf* correlated characters).

**character state tree**

**árbol de estados de caracter**

The linear or branching sequence of character states in a transformation series (*qv*).

**chemical stratification**

**estratificación química**

Oceanography: The layering of water defined by different chemical constituency than overlying and/or underlying water types. An extreme example: the hot brines at the bottom of the Red Sea basins.

**chemoheterotroph**

**quimioheterótrofo**

Chemotrophic (*qv*) organism that obtains its energy chiefly from organic compounds.

**chemolithotroph**

**quimiolitotrófico**

Chemotrophic (*qv*) organism that obtains its energy from the oxidation of inorganic compounds or elements (*cf* chemoheterotroph).

**chemotaxis**

**quimitaxis**

Orientation or directed movement of an organism in response to a chemical stimulus.

**chemotrophic**

**quimiotrófico**

Of or pertaining to organisms that obtain their energy from chemical sources and not from sunlight (*cf* phototrophic).

**chlorinity**

**clorinidad**

A measure of chloride and bromide ion concentration in sea water, used in estimating salinity, where salinity = 1.80655 times the chlorinity.

**chlorophyll maximum**

**máximo de clorofila**

A layer in the sea where the concentration of chlorophyll is highest, indicating the presence of "shade-tolerant" phytoplankton. These are adapted to low levels of light intensity, and revealed as a subsurface peak in chlorophyll concentration at depths of 60 to 100 to 150 m. Especially evident in the open subtropical Pacific and Atlantic, thought to be a permanent feature within these central gyral areas.

**chorology**

**corología**

The description and delimitation of the distributional ranges of taxa (*cf* biogeography, faunistics, floristics).

**circadian rythm (rhythm)**

**ritmo circadiano**

Diel pattern of various metabolic or behavioral activities which may persist even when the light regime (L:D) is artificially altered; thought to be controlled by an endogenous biological clock.

**circumtropical**

Species found in tropical and warm-temperate areas of the land and/or ocean throughout the world or at least very broadly distributed within the zone of the tropics.

**clade**

**clado**

Phylogeny: A monophyletic lineage resulting from cleavage (cladogenesis) in an earlier lineage. Clade is applied to genealogically-related (share most recent common ancestor) organisms (as opposed to grade (*qv*)).

**cladistic biogeography**

**biogeografía cladística**

Study of distribution based upon: knowledge of present distribution of taxa within monophyletic lineage, and estimate of phylogeny within that lineage. The approach is to account for the present distribution in the fewest presumed (deduced) vicariance or dispersal events consistent with that estimate of phylogeny.

**cladistic distance**

**distancia cladística**

The number of branching points between any two nodes (*qv*) on a phylogenetic tree (*cf* patristic distance, phenetic distance).

**cladistics**

**cladística**

A taxonomic theory of relationship based on estimates of propinquity of descent, by which organisms are ordered and ranked on the basis of the inferred most recent branching point in the phylogeny. The method requires strictly dichotomous branching, with sister (daughter) taxa supplanting the stem taxon (*cf* phenetics, evolutionary systematics).

**cladogenesis**

**cladogénésis**

A branching sequence in cladistic theory. It presumes the origin of daughter species by dichotomous splitting of a stem species (*cf* anagenesis).

**cladogram**

**cladograma**

A dendrogram (*qv*) based on cladistic principles; a strictly genealogical dendrogram in which no attempt is made to estimate or depict rates or amount of genetic divergence between taxa (*cf* phenogram).

**classification**

**clasificación**

The arrangement into categories using common characteristics or affinities.

**climatology**

**climatología**

The study of climate, *ie* of long-term environmental conditions that are associated in part with the presence or absence of various communities. In terrestrial systems the seasonal distribution of temperature and precipitation as well as insolation are important determinants; in the sea the seasonal distribution of insolation is the main determinant of climate, modified variously by advective hydrography.

**climax community**

**comunidad climax**

Normally defined as the plant community in equilibrium with the zonal climate. In the sea a true climax community may be best exemplified by the seasonally monotonous central gyral areas.

**clinal speciation**

**especiación clinal**

A form of allopatric speciation (*qv*) in which a vicariant event (*qv*) interrupts gene flow in a former cline.

**cline**

A gradual and nearly continuous monotonic change in a property, whether environmental (physical, *eg* thermocline; or chemical, *eg* nutricline) or biological (*eg* clinal variation in a character). Clines can be smooth (*qv*) or stepped (*qv*) and can reverse in sign (increase or decrease from mean value). In biology typically applied to changes in gene frequencies or character states clinally distributed.

**closed net haul**

**lance con red de apertura y cierre**

See discrete depth sampling.

**co-adaptation**

**coadaptación**

Development and maintenance of advantageous traits benefiting one or both parties in a two-species interaction. Predator-prey and cleaning-symbiosis are examples of such evolving interactions in marine communities.

**coaction**

**interacción**

Interaction; reciprocal action between members of a group or community. May take the form of competition, predator-prey interaction, symbiosis, etc.

**coarse-grain exploitation**

**explotación de grano grueso, explotación selectiva.**

Use of resources electively (*cf* electivity). Harvesting resources, particularly food resources, in disproportion to actual occurrence of resource in environment (preference). (*cf* fine-grain exploitation).

**coastal plain**

**planicie costera**

A relatively flat land area adjacent to the sea.

**coastal upwelling**

**afloramiento costero**

Upwelling (*qv*) of subsurface waters impinging upon or nearby a coast; upwelling inshore of the shelf break.

**coastal waters**

**aguas costeras**

Ocean waters nearshore; the ocean region covering the continental shelves (*cf* neritic).

**coastal zone**

**zona costera**

General term for the nearshore region of the ocean; that portion of the ocean most influenced by land effects and freshwater runoff.

**coenocline**

**cenocline**

Gradient of communities along an environmental gradient, reflecting the changing importance or frequency of different species populations in the community (*cf* ecocline; superorganism concept).

**coevolution**

**coevolución**

Complementary evolution (*qv*) or coadaptation (*qv*) of closely associated or interacting species.

**cohort**

**cohorte**

(1). Population biology: Age class (*qv*).

(2). Taxonomy: A taxonomic rank between infraclass and superorder.

**cold core ring**

**anillo de centro frío**

A mesoscale cyclonic gyre (*cf* mesoscale feature) with upwelling at the center of the system typically formed as an eddy from a western boundary current such as the Gulf Stream. May entrain and isolate localized populations for periods lasting weeks to months.

**cold-water species**

An austral or antarctic, boreal or arctic, species typically in oceanic regimes, found at or poleward of ca. 40°N or 40°S.

**cold-water vs warm-water**

**aguas cálidas vs. aguas frías**

In general "warm-water" includes all oceanic areas equatorward of the subtropical convergence zones (ca 40°N and 40°S). "Cold-water" includes generally includes all oceanic areas poleward of those zones. (*cf* cold-water species; warm-water species).

**colony**

**colonia**

Ecology: Physiologically connected group of individual organisms incapable of separate existence or of limited such capability (*eg* non-reproductive) (examples include sponges, and many cnidarians, among others).

**commensalism**

**comensalismo**

Interaction between species populations in which one species benefits from the interaction, but the other species is unaffected (*cf* amensalism, mutualism).

**community**

**comunidad**

Ecology: Applied to any group of species found living together in a particular environment.

Views of community organization range from random assemblages (*qv*) to communities as superorganisms (*cf* superorganism concept). In the open ocean the concept of a community has a wide range from assemblage(*qv*) to biome(*qv*).

**compensation depth**

**profundidad de compensación**

In aquatic ecosystems, the depth at which light penetration is so reduced that the rate of photosynthesis just balances the rate of respiration. This is generally at a depth where light intensity is about 1% of full daylight. Also called compensation level (*cf* critical depth).

**competition**

**competencia**

Ecology: Interaction between conspecific individuals or individuals of different species in which the growth and survival of all competing individuals is negatively affected as long as the competing individuals are present in the system.

**competitive exclusion**

**exclusión competitiva**

The idea that two species with identical resources needs and utilization patterns may not indefinitely coexist in a stable environment (Gause's Principle or Rule). In this view one species will inevitably outcompete and eliminate the other species from the system. Commonly modeled by the Lotka-Volterra (*qv*) equations derived from the logistic model of population growth.

**competitively dominant species**

**especie competitivamente dominante**

In a competition situation, the species that always "wins", extirpating the other, except where added predation by a third species or environmental manipulation may affect the competitive outcome.

**complementary species**

**especie complementaria**

See ecologically equivalent species.

**concordant distribution pattern**

**patrón de distribución concordante**

Congruence in the distributional tracks or ranges of species (or higher taxa), but can also refer to congruence in areas of maximum abundance of taxa. Widely used in open ocean biogeographic studies for determination of major ecosystem-assemblage areas, this approach, under the name generalized track, is the starting point of the vicariance biogeographer.

**congeneric**

**congenérico**

Applied to species of the same genus.

**conservative property**

**propiedad conservativa**

Oceanography: Characteristics of seawater that are nearly constant, changing only very slowly, such as salinity, density, refractive index and osmotic pressure (*cf* nonconservative property). Essentially they change only at the interface between ocean and atmosphere (evaporation, rainfall, etc), or land and sea (freshwater runoff, etc).

**conspecific**

**conspecífico**

Applied to individuals or populations of the same species; (*cf* heterospecific).

**consumers**

**consumidores**

See heterotrophic.

**contagious distribution**

**distribución contagiosa**

See overdispersion.

**continental drift**

**deriva continental**

Hypothesis proposed to describe the relative movements of continental land masses over the surface of the earth. First plausibly espoused by Alfred Wegener, but corroborated by the development of the theory of plate tectonics (*qv*) which provides a credible mechanism.

**continental island**

**isla continental**

An island that is geologically related to a continent and was formerly connected to the continent, allowing floral and faunal interchange until the time of disjunction.

**continental margin**

**margen continental**

Nearshore ocean zone that consists of the shoreline, shelf, slope and rise (*qv*). Underlain by continental or sialic crust.

**continental rise**

**elevación continental**

An area of gently sloping ocean floor (slope of usually less than half a degree or 1:100) at the base of the continental slope.

**continental shelf**

**plataforma continental**

The ocean floor adjacent to the shoreline (average slope typically very gradual, 10' or less, or 1:1,000). This zone extends from the line of permanent immersion to the shelf break (usually about 100 -120 m depth).

**continental slope**

**talud continental**

The ocean floor extending from the shelf break (at the seaward edge of the continental shelf) to the continental rise (where present) or to abyssal depths where absent (average slope about 04° or 7:100) (*cf* bathyal zone).

**continuous variable**

**variable continua**

A variable that can theoretically assume any value between two given limits.

**continuum**

**continuo**

A gradual or imperceptible intergradation between two or more extreme values.

**contranatant**

Fisheries biology: Cycle of migration concept; swimming, moving or migrating against the current (*cf* denatant).

**convection**

**convexión**

(1) Vertical circulation within a fluid resulting from density differences caused by temperature variation or (in the oceans) salinity variation.

(2) In the atmosphere, formation of Hadley Cells driven by rising air heated at the surface at the equator and descending over the subtropics. The trade winds (*qv*) and antitrade winds (*qv*) complete the flow.

**convergence**

**convergencia**

(1) Evolution: Similarity, usually morphological, acquired independently in distantly-related forms (*cf*. homoplasy).

(2) Oceanography: situation in ocean or atmosphere where more fluid flows into a given surface or nearsurface regional stratum than out, resulting in sinking and displacement.

**coordinate taxa**

**taxones coordinados**

Phylogeny: In cladistics, groups within a monophyletic lineage at the same branching level require equivalent rank in the Linnean hierarchy.

**coral**

Sessile invertebrates of the Phylum Cnidaria (Coelenterata) (Class Anthozoa). Many species are colonial with the ability to deposit massive calcareous skeletons which often form reefs. All reef-building (hermatypic) corals have endosymbiotic mutualistic dinoflagellates termed zooxanthellae (*qv*).

**coral reef**

**arrecife coralino**

The massive calcareous deposits produced through the growth of corals, other invertebrates, and benthic algae, in shallow waters of the tropics. The classic categorization of reef-forms is fringing reef *vs* barrier reef *vs* atolls (*qv*).

**core method**

**método de núcleo de masa de agua**

Oceanography: Technique for analyzing a region where a water mass property reaches a maximum or minimum value within a wedge- or tongue-shaped distribution. Because of mixing the core gradually weakens in intensity (difference from surrounding waters) as it spreads with distance from the source. By backtracking along the core the source area or zone may be located.

**correlated characters**

**caracteres correlacionados**

Character state (*qv*) expressions that are associated either as manifestations of a well-integrated ancestral gene complex or because they are functionally similar or related.

**correlation**

**correlación**

(1). Stratigraphy: discovery of similarities in lithography and/or fossil content that results in assignment of different rock formations or portions thereof to the same time interval.

(2). Statistics: technique used to assess degree of association between two independent data sets.

**corridor**

**corredor**

Route along which the dispersal of many species is regarded as probable.

Typically, a migration route allows more or less uninhibited faunal and floral interchange, although essentially one-way corridors are also quite possible (*cf* barrier).

**cosmopolitan**

**cosmopolita**

Distribution of an organism that is worldwide or pandemic. Applied to oceanic species that are warmwater species (*qv*) and found throughout most of all three warmwater oceans.

**coterminous**

**coterminal**

Applied to organisms with overlapping or quite similar distributions (*cf* sympatry, syntopic).

**-coulous**

Suffix, meaning "to inhabit", *eg* cavernicoulous, monticoulous, piscicoulous, etc.

**crenum**

Of or pertaining to a community associated with spring (not vernal (*qv*)) waters.

**crepuscular**

Twilight; organisms active at dawn and dusk; also applied to events which take place and/or with maximum rates during dawn and dusk (*cf* diurnal, nocturnal).

**critical depth**

**profundidad crítica**

Oceanography/Limnology: The depth, determined by measurements, at which total (integrated) photosynthesis is equal to total (integrated) respiration rate for the reference population of phytoplankton. Also called critical level (*cf.* compensation depth).

**cryopelagic**

**criopelágico**

Pelagic organisms limited to arctic and/or antarctic (polar) waters, not occurring in intervening temperate or tropical waters.

**cryoplankton**

**crioplancton**

Pertaining to cryopelagic plankton.

**crypsis**

**cripsis**

See camouflage.

**cryptic species**

**especie críptica**

Sibling species (*qv*); sometimes termed hidden species.

**cultural eutrophication**

**eutrofificación cultural**

General term for increase in nutrients in aquatic or marine ecosystems due to human activities.

**cyclomorphosis**

**ciclomorfosis**

Cyclical changes in form such as seasonal changes in morphology.

**cyclonic**

**ciclónico**

Referring to an area of below average pressure (low pressure cell) in the ocean or atmosphere, characterized by generalized upwelling within the central region of the cell. The circulation pattern is such that when visualized from above, motion of a particle on the right side is northward in the Northern Hemisphere (counterclockwise) and southward in the Southern Hemisphere (*cf* anticyclonic, gyre).

## D

**data matrix****matriz de datos**

An X-Y spreadsheet or table in which values corresponding to the X rows (cases) are entered for the Y columns (fields). Data may be qualitative or quantitative. Additional table dimensions are possible but any beyond third order (X-Y-Z) are not commonly used in field-oriented biology.

**daughter species****especie hija**

Phylogeny: One of two species resulting from cleavage of the stem species during cladogenesis (*cf* parapatric speciation).

**decomposer****descomponedor**

Organisms (mainly bacteria and fungi) that provide for nutrient recycling by consuming complex organic molecules and releasing simpler organic molecules and inorganic molecules as metabolic products. Generally synonymous with microconsumer (*cf* heterotroph).

**deep water mass****masa de agua profunda**

A water mass typically formed in boreal or austral subarctic or subantarctic seas by cooling of relatively salty water at the surface. Occurs at depths between intermediate and bottom water. For example, North Atlantic Deep Water.

**degeneration****degeneración**

Evolution: Loss or reduction of structure or function during the course of evolution or ontogeny.

**delta**

Region at the mouth of a river where sediments are deposited resulting in a buildup of the land structure because of sedimentation rate and local conditions.

**deme**

(1) A panmictic cluster of individuals, separated from other such clusters by lowered expectation of panmixis (*qv*). (2) A local population of a species; the community of potentially interbreeding individuals at a particular locality (*cf* parapatric speciation).

**demersal**

In aquatic systems, organisms, especially fishes, that live close to the bottom. Also applies to eggs and larvae originating (spawned, hatched) on or near the bottom and remaining there until transformation (*cf* emersal).

**denatant**

Fisheries biology: Cycle of migration concept. Swimming, moving, drifting or migrating with the current. (*cf* contranatant)

**dendrogram**

**dendrograma**

A diagrammatic drawing in the form of a tree designed to indicate degrees of relationship (*cf* phylogenetic tree, cladogram, phenogram, hierarchical classification).

**density**

**densidad**

(1) Physics: Mass per unit volume.

(2) Ecology: Population standing stock standardized by unit area or unit volume.

**density current**

**corriente de densidad**

Current produced by differences in density - usually a thermohaline current - where denser water sinks and less dense water rises to replace it.

**density-dependent**

**denso-dependiente**

Factor affecting population density covarying with population size, *ie* proportion of individuals affected by factor is a function of population size.

**density-independent**

**denso-independiente**

Factor affecting population size not varying with population density but operating on a constant proportion of individuals, irrespective of population size.

**depensatory compensation**

An increase in the abundances of some species in a feeding guild (*qv*) when other species of the guild are absent, compared to the abundances when the guild assemblage is species rich.

**deposit feeder**

**consumidor de material depositado**

Any organism feeding on fragmented particulate organic material in or on the substratum (*cf* detritovore).

**derivative**

**derivativo**

Phylogeny: Adjective applied to an apomorphous (*qv*) character state. Derived or descended from something different (*cf* primitive; plesiomorphous).

**determinate growth**

**crecimiento determinado**

Growth that is limited during the life span of an organism so that the organism reaches a maximum size, after which growth ceases (*cf* indeterminate growth).

**deterministic process**

**proceso determinístico**

Applied to processes and patterns that are the predictable outcome of antecedent causes (*cf* stochastic processes).

**detritovore**

**detritívoro**

Heterotroph that feeds on dead material, *eg* macerated salt marsh wrack or leaf litter (*cf* deposit feeder).

**detritus**

**detrítos**

Dead organic material, typically particulate plant material on or in the seafloor.

**diadromous**

**diádromo**

Organisms that migrate from seawater into fresh (anadromous, *qv*) or from freshwater into salt (catadromous, *qv*) to spawn (*cf* oceanodromous, potamodromous).

**diapause**

**diapausa**

A resting stage of halted or inhibited development of an organism related to seasonal changes in food supply, temperature or other factors.

**diastrophism**

**diastrofismo**

Deformation of the Earth's crust on a large scale to produce major geological features, *eg* mountain ranges, rift valleys, continents and the deep ocean floor.

**diatom ooze**

**fango de diatomeas**

A siliceous deepsea sediment in which 30% or more of the material is composed of frustules of diatoms.

**dichopatric**

**dicopátrico**

Pertaining to populations or species having geographical ranges separated to the extent that individuals from the two populations never meet and gene flow is not possible. (*cf* allopatric, parapatric, sympatric).

**dichotomous character**

**caracter dicotómico**

A character that exists in only two states, a binary character, *eg* present *vs* absent.

**dichotomous key**

**clave dicotómica**

An identification key constructed as a sequence of alternative choices; each pair forming a character couplet.

**diel vertical migration**

**migración vertical diaria**

Twice daily movement of planktonic or micronektonic organisms in response to day:night shift in light intensity. Typically migrating organisms are found at shallower depths during nighttime, deeper depths during daytime. Sometimes (incorrectly) termed diurnal vertical migration.

**differentiation**

**diferenciación**

(1) Biology: Changes in structure and function of a group of cells with increasing specialization during ontogeny. Loss of totipotency (*qv*). (2) Biogeography: The origin of difference(s) between different organisms or biotas as a result of evolution and/or other processes.

**dimictic**

**dimítico**

Applied to a body of water (typically a midlatitude lake) in which occur two seasonally driven turnover events.

**directional selection**

**selección direccional**

(1). Evolution: Anagenetic speciational trend in which there is an apparently directed (orthogenetic) stepwise succession of species or forms, presumably reflecting longterm, monotonic selection (*cf* anagenesis, orthogenesis).

(2). Genetics: Selection that changes the frequency of an allele in a constant direction, often used in agriculture/horticulture (*cf* disruptive selection, stabilizing selection).

**discrete depth sampling**

**muestreo de profundidades discretas**

Sampling protocol employing equipment that allows capture of organisms within a limited and defined depth stratum, with little or no contamination (unwanted captures) in depths shallower (or deeper) than the specified stratum. Essential to description of diel vertical migration (*qv*), seasonal and ontogenetic shifts in depth, etc. (*cf* open net haul).

**disharmony**

Ecology: In biodiversity, the overrepresentation of some groups of organisms and underrepresentation or absence of others due to accidents of dispersal. Encountered frequently in dealing with oceanic islands but may apply elsewhere.

**disjunct**

**disyunto**

Distinctly separate; used of a discontinuous range in which one or more populations are separated from other potentially interbreeding populations by sufficient distance or other barriers to preclude effective gene flow between them.

**dispersal**

**dispersión**

Tendency of an organism to move away from its birth (natal) or breeding site (*cf* philopatry).

**dispersal biogeography**

**biogeografía dispersiva**

Study of the geography of organisms through the center-of-origin/dispersal approach (*qv*).

**dispersion**

**dispersión**

Statistics: The internal pattern of variation within a population, *eg* variation in the value of a character around a mean value. In spatial statistics the pattern relative to some specific location of individuals relative to one another (*cf* even, random, aggregated).

**disphotic (dysphotic) zone**

**zona disfótica**

Middepths of the ocean (or in freshwater) where light intensity is sufficient during daylight hours to cue diel photic response or visual detection, but insufficient to support net positive photosynthesis (*cf* euphotic, aphotic).

**disruptive selection**

**selección disruptiva**

Population biology: Selection that changes the frequency of alleles in a disjunctive or divergent manner, leading to bimodality (or multimodality), *ie* the fixation of alternative alleles in members of the population, which, after several generations, should result in two (or more) divergent phenotypic extremes in the population, with few or no intermediate phenotypes (*cf* directional selection, stabilizing selection).

**distance**

**distancia**

Systematics: Any measure of dissimilarity between taxa.

**distribution**

**distribución**

(1) Biogeography: The geographical range of a taxon or group.

(2) Ecology: The spatial pattern or arrangement of the members of a population or group (*cf* dispersion).

**diurnal**

**diurno**

Active during daylight hours (*cf* crepuscular, nocturnal).

**diurnal vertical migration**

**migración vertical diurna**

See diel vertical migration.

**divergence**

**divergencia**

(1) Evolution: Change in allele frequencies in a population. Also: genetic segregation and/or differentiation within a taxon to the extent that distinct derivative taxa result (*cf* anagenesis, cladogenesis).

(2) Oceanography, meteorology: Net outward flow (loss) from a particular stratum, with deeper fluid upwelling to replace it, as at the surface along the equator in the Pacific. The opposite of convergence (*qv*).

**diversification**

**diversificación**

Evolution: Increase in the diversity of distinct types in one monophyletic lineage.

**diversity**

**diversidad**

Ecology: Measure of the taxonomic complexity of a community with the components of species richness (number of species) and dominance or equitability (the distribution of individuals among species). Often measured by indices that estimate the likelihood that two individuals of the same species will be selected on successive random samples from the community.

**diversity index**

**índice de diversidad**

Mathematical expression of the species diversity of a given community or area, typically including components of both species richness ( $qv$ ) and equitability ( $qv$ ).

**DOC**

**COD**

Dissolved organic carbon. That fraction of nonliving organically bound carbon in seawater that will pass through a filter of stipulated pore size (often 0.45 mm). By far the largest fraction of organically-bound carbon in sea water.

**doldrums**

**zona de calmas ecuatoriales**

Meteorology: Oceanic equatorial zone with low pressure and light variable winds at the surface, reflecting the overhead ascending arm of the tropical Hadley Cell ( $qv$ ). The zone moves seasonally north and south with respect to the equator (*cf* convection, trade winds).

**domain**

**dominio**

Oceanography: Unique identifiable bodies of water with consistent properties, climatic locality and continuity. For example Transitional Domain (*cf* transition region).

**dome**

**domo**

Oceanography: An area of recumbent (return) flow in an equatorial current system resulting in upwelling ( $qv$ ) as indexed by marked shoaling of isotherms and other features, as in the Guinea Dome (eastern tropical Atlantic) or Costa Rica Dome (eastern tropical Pacific).

**dominance**

**dominancia**

Ecology: Applied to species that are conspicuously successful in competition. The species having the most influence on community composition and form; also used to describe the most conspicuous, or largest and/or most abundant species in a community.

**dominance hierarchy**

**jerarquía de dominancia**

(1) Behavior - Social order of dominance sustained by agonistic or other behavior, *eg* pecking order.

(2) Ecology - listing in rank order by species of community components, the most abundant species is listed first, the next most abundant second, and so forth.

**dominant species**

**especie dominante**

The species having the greatest influence on community composition and form.

**downwelling**

**hundimiento (de masa de agua)**

Sinking of ocean surface waters, as in the central regions of an oceanic anticyclonic Gyre (*cf* upwelling).

**drift**

**deriva**

(1) Oceanography: Movement of objects at the ocean surface associated with advection by currents or being blown by the wind.

(2) Geology: Any sediment laid down through the activity of glacial ice.

(3) Geophysics: Movement of crustal plates, including continents or portions thereof, relative to the mantle.

**DSL**

**capa difusora profunda (CDP)**

Deep scattering layer. A sonically interfering stratum of organisms causing sensible acoustic return on sonar equipment, often yielding an acoustic signature as a false bottom.

**dwarfism**

**enanismo**

The condition of being stunted, much smaller than normal, having restricted growth.

**dynamics**

**dinámica**

Movement of objects and the forces thereunto related, in a Newtonian Laws of Motion sense. In modern ocean science jargon has come to mean studies directed toward elucidation of function and prediction as opposed to static description.

**dysphotic**

**disfótico**

See disphtotic.

**dystrophic**

**distrófico**

Pertaining to overproductivity in aquatic environments, usually related to abnormally high nutrient load, resulting in choking overgrowth of aquatic vegetation (*cf* eutrophic, oligotrophic).

In a lake typically associated with bog and peat production and anoxia in bottom waters and/or sediments.

**dyticon**

**pelon, psammon**

An ooze-inhabiting community.

**E**

**East Pacific Barrier**

**barrera del Pacífico este**

The barrier to dispersal of shallow-water marine organisms (as well as terrestrial organisms) imposed by the vast islandless expanse of the eastern Pacific Ocean.

**eastern boundary current**

**corriente de margen oriental**

The relatively shallow, slow, high productivity near-coastal limb of the great subtropical anticyclonic gyres found on the eastern margin of oceans (especially the Atlantic and Pacific); *eg* the California, Peru, Canary and Benguela Currents.

**ebb tide**

**marea bajante**

The receding or outward flowing portion of the tidal cycle (*cf* flood tide).

**ecdemic**

**alóctono**

Foreign, non-native, introduced (*cf* endemism).

**ecesis (œcesis)**

The pioneer stage of dispersal to a new habitat; successful invasion and establishment.

**eclectic**

**ecléctico**

Composed of theories, doctrines, protocols or paradigms drawn from a number of different sources; willingness to use that which works in place of that which is desired. Pragmatic.

**ecogeographical rule**

**regla ecogeográfica**

Any generalization describing a trend of geographic variation correlated with environmental conditions (*cf* Bergmann's rule, Jordan's laws).

**ecological (Eltonian) pyramid**

**pirámide ecológica (de Elton)**

Graphical representation of trophic structure and function of a community or ecosystem; may consist of plots of numbers (abundance) or biomass or energy. Illustrates that energetically the autotrophs are always dominant but in standing stock terms grazing pressure may result in so-called inverted pyramids (biomass only) for short periods of time.

**ecological amplitude**

**amplitud ecológica**

A component of "potential niche" (*cf* fundamental niche) - range of tolerance of a given organism to any one environmental parameter (temperature, salinity, etc), often exhibiting a bell-shaped response curve or nearly so.

**ecological biogeography**

**biogeografía ecológica**

The study of animal distribution with emphasis on environmental association, usually emphasizing present not longterm interactions, seeking to utilize pattern in environmental parameters (physical, chemical, biological) to elucidate understanding of pattern in the distribution of single species and assemblages of species.

**ecological efficiency**

**eficiencia ecológica**

Ratio of output to input of mass and/or energy at any given trophic level (*qv*) (also applied to single species or populations or parts or assemblages thereof).

**ecological niche**

**nicho ecológico**

See niche.

**ecological race**

**raza ecológica**

A race (*qv*) that owes its most conspicuous attributes to the selective effect of a specific environment, usually localized or of limited distribution.

**ecologically equivalent species**

**especie ecológicamente equivalente**

Pairs of independently evolved but ecologically similar species occupying similar niches in different communities; also termed complementary species.

**ecology**

**ecología**

Study of the interrelationships among organisms and between organisms and all aspects of their environment, both living and nonliving.

**ecophene**

**ecofeno**

All naturally occurring phenotypes produced within a given habitat by a single genotype.

**ecophenotypic**

**ecofenotípico**

(1) Denoting nongenetic modification of the phenotype by specific ecological conditions, particularly those associated with a particular habitat.

(2) Variation caused by nongenetic responses of the phenotype to local conditions of habitat, climate, etc.

**ecosystem**

**ecosistema**

Used to describe the interdependence of species in the living world (biome (*qv*) or community (*qv*)) upon one another and with their nonliving (abiotic) environment. Energy flow, material flow and biogeochemical interactions are among the fundamental components of ecosystem-level studies.

**ecotone**

**ecoton**

Relatively narrow and sharply defined transition zone between two or more communities.

Edge communities or assemblages (those associated with ecotones) are commonly species rich with elements of both communities present (although in extreme ecotones (land to sea, freshwater to salt water) the reverse may be true).

**ecotype**

**ecotipo**

A descriptive term applied to local races (especially plants but also zooplankton) of varying degrees of distinctiveness which owe their most conspicuous characters to the selective effects of local environments.

**ecronic**

**estuarial**

Estuarine.

**ectotherm**

**ectotérmico**

See poikilotherm.

**eddy**

**torbellino, rulo, giro, vórtice**

Oceanography, meteorology: Small or mesoscale (*cf* mesoscale feature) motion of fluid (air or water) in different directions (including at some points contrary to the direction of the large-scale current with which they are associated) usually in circular form. Eddies vary in size from small-scale turbulence to such mesoscale features as cold core (*qv*) and warm core rings (*qv*).

**edge effect**

**efecto de borde**

Ecology: (1) The effect exerted by adjoining communities on the population structure within the marginal zone (ecotone), which often contains a greater number of species and higher population densities of some species than either adjoining community. (2) In biofouling studies pertains to differences in the composition and abundance of organisms occurring at the edge of a structure compared to the center of the structure (*eg* fouling panel).

**edge species**

**especie de borde**

A species found predominantly or commonly in the marginal zone (ecotone) of a community.

**Ekman divergence**

**divergencia de Ekman**

As a consequence of the Coriolis effect and friction, surface drift in response to the wind is  $90^\circ$  to the right of the wind over the depth of the Ekman layer (*qv*) in the northern hemisphere. Thus sustained longshore winds cause offshore divergence of surface waters with the consequence of coastal upwelling, a most important feature of eastern boundary current ecosystems, at least seasonally.

**Ekman layer**

**capa de Ekman**

The thickness of the layer of water affected by the Ekman spiral, Ekman surface drift, and hence Ekman divergence; a function of wind speed and latitude:  $DE \approx 4.3 W / (\sin f)^{1/2}$  (where  $DE$  = Ekman Layer depth,  $W$  is wind velocity, and  $f$  is the latitude, in appropriate units), approximately 50 m for a wind of  $10 \text{ m sec}^{-1}$  at  $45^\circ \text{ N}$ .

**El Niño**

Oceanography: Collapse of the normal upwelling regime in the eastern Pacific, particularly in the Peru Current, associated with trans-Pacific flushing of warm wind-mixed layer water during an ENSO (*qv*) event .

**electivity**

**selectividad**

Ecology: Measure of the degree of prey selection by a predator in relationship to the prey available (*cf* coarse-grain exploitation, fine-grain exploitation).

**electromorph**

**electromorfo**

Term designating a population (s) differing from another such population (s) in the electrophoretic mobility of one or more enzymes (*cf* allozymes).

**Eltonian Pyramid**

See ecological pyramid.

**eluvium**

A sand dune community (synonym: enaulium).

**emersal**

Applied to eggs and/or larvae, typically of fishes, where the parents may spawn on or near the bottom or in the water column but the eggs and smallest larvae and juveniles are typically near the surface, at the shallowest depth for the species (*cf* demersal).

**emerged aquatic plants**

**plantas emergentes**

Plants that are partially emergent, typically referring to freshwater aquatic plants.

**emigration**

**emigración**

Biogeography: Movement of an individual or group out of a geographical region (*cf* immigration).

**enaulium**

See eluvium.

**endemism**

**endemismo**

Confined to; occurring nowhere except in the place of reference. Situation in which a species or higher taxonomic group is restricted to a particular geographic region, reflecting history, ecology and opportunity (synonyms: exclusive, peculiar, precinctive, provincial).

**endobenthic**

**endobéntico, infaunal**

Organisms that live in the surface sediments on the sea floor (*cf* epibenthic, hyperbenthic, infauna).

**endogenous rythm (rhythm)**

**ritmo endógeno**

A recurring behavior pattern, the cues for which arise or originate internally within the organism or system, *eg* the observation of daily activity patterns even when light is held constant; biological clock. (*cf* zeitgeber).

**endolithic**

**endolítico**

Of or pertaining to organisms that live in rocks (or hard substrata such as dead coral) (*cf* lithophagic).

**endotherm**

**endotérmico**

See homiotherm.

**engibenthic (engybenthic)**

Of or pertaining to close association with the sea floor.

**enrichment**

**enriquecimiento**

Ecology: Addition of nutrient(s) to an ecological system.

**ENSO event**

**fenómeno de El Niño**

Oceanography: Acronym from El Niño - Southern Oscillation. A global coupled atmosphere-ocean event with El Niño (*qv*) as one effect. Caused by a weakening of the trade winds, especially the SE trades, in the Pacific, associated with anomalously high pressure over Indonesia, resulting in a considerable volume of warm mixed-layer water moving eastward along the equator in the Pacific in the form of a series of Kelvin waves.

**entrainment**

Oceanography: Energy driven incorporation of one parcel of water into the flow of another, as in the entrainment of deeper, more saline, denser water upward into outflowing fresher water (typically river discharge) at the mouth of a river, distributary or estuary.

**environment**

**ambiente**

Ecology: The complete range of external conditions, physical, chemical and biological, in which an organism lives.

**environmental resistance**

**resistencia ambiental**

The sum total of environmental limiting factors, both biotic and abiotic, which constrain the potential niche of an organism to its realized niche (*qv*).

**epeiric sea**

**mar epicontinental**

Epicontinental sea (*qv*).

**epibenthic**

**epibéntico**

Of or pertaining to organisms that live on the surface of the sea floor (*cf* endobenthic, hyperbenthic, infauna).

**epibiota**

An organism or group of organisms occurring commensally on the surface of another organism.

**epicontinental sea**

**mar epicontinental**

A shallow sea extending far into the interior of a continent, eg Hudson's Bay, Baltic Sea.

**epiclysite**

Pertaining to the tide pools of the upper shore.

**epideictic**

A specially timed communal aggregation within a population, possibly for interbreeding. For example one proposed function for diel vertical migration (*qv*) is social facilitation (*qv*) of interbreeding.

**epifauna**

Of or pertaining to animals that live on as contrasted to living within a substratum (living or nonliving) (*cf* benthos, infauna, phoresy).

**epilimnion**

**epilimnio**

Upper warm relatively thin (usually) mixed layer in a thermally stratified lake in summer - lying over the deeper usually considerably thicker cold hypolimnion (*qv*).

**epineuston**

Organisms living on the surface film of a body of water (*cf* hyponeuston).

**epipelagic**

**epipelágico**

- (1) Stratum between 0 - 200 m in the offshore ocean.
- (2) In the oceanic realm, the euphotic (*qv*) zone, where light levels permit positive net rates of photosynthesis.
- (3) Pelagic organisms found during daylight within these depth limits.

**epipelagic**

**epipélago**

Growing on mud.

**epiphyte**

**epifítico**

Plant that uses another plant, such as a tree or giant kelp, for physical support, but does not draw nourishment from it.

**epipleuston**

Organisms which move over the surface film of water with most or all of their bodies above the water.

**epipsammon**

**epipsammon**

Microscopic flora and fauna found on the surface of and/or attached to sand grains.

**epitokous**

**epítóquico**

Reproductive; having or producing offspring.

**epizoic**

**epizoico**

An organism or group of organisms living commensally on the surface of an animal.

**equatorial**

**ecuatorial**

In reference to the area of one or more of the equatorial principal upper water masses or to the Atlantic equatorial area.

**equatorial region**

**región ecuatorial**

An area of sea surface underlain by one of the equatorial principal upper water masses (Eastern Tropical Pacific, Pacific Equatorial, Indian Equatorial, or, in the Atlantic, lying astride the equator, approximately 10° N to 10°S, but broader latitudinally in the east than in the west).

**equatorial species**

**especie ecuatorial**

A pelagic oceanic species found in or limited to one or more equatorial regions.

**equatorial trough**

**zona de baja presión ecuatorial**

See Intertropical Convergence Zone.

**equilibrium hypothesis**

**hipótesis de equilibrio**

Hypothesis that a community reaches maximum diversity when species richness and equitability are stabilized, and that, following a disturbance, the community will recover to pre-existing levels of species richness and equitability.

**equitability**

**equitabilidad**

Ecology: A measure of the proportional evenness of occurrence of individuals among all component species of a community. Mathematically:  $E = H'_{\text{obs}}/H'_{\text{max}}$ , where  $H'$  is the Shannon-Wiener information theory index of diversity,  $H'_{\text{obs}}$  is the value observed, and  $H'_{\text{max}}$  is the maximum value of  $H'$  for the number of taxa and individuals comprising the community (*cf* diversity index, species richness).

**error**

(1) Statistics: Deviation of observed value from expected value, as in Type I and Type II error;  
(2) Taxonomy: In nomenclature an unintentional incorrect spelling, such as a typographical error.

**estuary**

**estuario**

A semienclosed coastal body of water which has a free connection with the open sea and in which typically seawater is measurably diluted with freshwater derived from land drainage (*cf* negative estuary, neutral estuary).

**Eulerian measurement**

**medición euleriana**

Oceanography: Measurement of currents in which the velocity (speed and direction) is stated at every point in the fluid (*cf* Lagrangian measurement). The classic method of Eulerian measurement is a simple propeller-type flowmeter.

**eulittoral zone**

**zona eulitoral**

In marine ecosystems the main area of the littoral (*qv*) zone lying below the littoral fringe and above the sublittoral.

**euphotic zone**

**zona eufótica**

Topmost stratum of water where daytime light intensity is sufficient to support a net positive rate of photosynthesis (primary production), above the compensation depth (*qv*).

**ury -**

**euri-**

Prefix, meaning wide.

**uryhaline**

**eurihalino**

Organisms with a broad range of tolerated salinities.

**urythermal**

**euritérmico**

Organisms with tolerance to a wide temperature range.

**urytopic**

**euritópico**

Able to withstand a wide variety of environmental situations and/or found in a wide variety of habitats.

**eustatic**

**eustático**

Applied to worldwide changes in sea level caused by tectonic movement or by the growth and decline of continental glaciers.

**eutrophic**

**eutrófico**

Rich in inorganic nutrients, capable of sustaining high levels of primary production in the presence of sufficient insolation and water column stability (*cf.* oligotrophic, dystrophic).

**eutrophication**

**eutroficación, eutrofización**

The process of enriching an environment with nutrients. Usually applied to the case of over-supply of nutrients by human activities.

**even**

**regular**

Ecology: One of three generally-used descriptors of the spatial distribution (dispersion) of a species. If the question is: "Given the location of one individual, what is the probability that another is nearby?"

- (1) Probability increased = aggregated;
- (2) Probability decreased = even;
- (3) Probability unaffected = random.

Even distributions are regular; at maximum evenness the distribution is like a planar crystal lattice.

**evolution**

**evolución**

Descent with modification. A permanent change in gene frequencies in a population. The cumulative effect of such change over time.

**evolutionary systematics**

**sistemática evolutiva**

A major "school" of phylogenetic reasoning: basically akin to cladistics but incorporating the belief that obtaining an estimate of genetic divergence is as or more important than propinquity of descent in assessing relationships. (*cf.* phenetics, cladistics).

**exclusive species**

**especie exclusiva**

Species limited to a specific community (*cf.* accidental, indifferent, preferential, selective species).

**excursion**

**excursión**

Oceanography: The range of variation in a physical, chemical or biological parameter over a stated time period. Usually recurrent (*eg* seasonal), as in the annual excursion of mixed

layer temperatures at a stated position (*eg* about 5° C to 14° C at 50° N, 145° W).

**exogenous rhythms (rhythms)**

**ritmo exógeno**

Recurring behavior patterns whose behaviors are cued and maintained by external factors (*cf.* endogenous rhythms, zeitgeber).

**expatriation**

**expatriación**

Export of members of a population to an area(s) in which continuous immigration is required to sustain the population (*cf.* allopatric, waifs).

**exponential growth**

**crecimiento exponencial**

A model of population growth explicitly stated as  $dN/dt = rN$  where N is the number of individuals alive at any time t and r is the intrinsic rate of population increase (which in this, the simplest case, is constant for all values of N).

**extinction**

**extinción**

The elimination of all individuals of a taxon, such that no living individuals remain.

**extirpation**

The elimination of all individuals of a taxon from a specific geographic region or area.

## F

**facies**

Paleontology: Sum total of features that reflect the specific environmental conditions under which a given rock formation was formed or deposited - conditions may be lithological, sedimentological, or faunal.

**facultative**

**facultativo**

Contingent; assuming a particular role or mode of life but not restricted to that condition (*cf* obligate); *eg* facultative cleaning symbiont.

**fall overturn**

**mezcla de otoño**

Condition that occurs in the autumn in temperate regions when surface waters cool and become dense enough to sink and displace deeper waters, used especially with reference to lakes.

**family**

**familia**

Taxonomy: Category including one genus or a group of genera or tribes of common phylogenetic origin which is separated from related similar units (families) by a decided gap, the size of the gap being in inverse ratio (sometimes) to the size of the family .

**fauna**

The animal life of a given region (*cf* flora, biota) or geological period.

**faunal boundary**

**límite faunístico**

See barrier, boundary region.

**faunal province**

**provincia faunística**

A large geographical area that is a biological division of the earth's surface containing a fauna more or less peculiar to it. Endemism is the most commonly used criterion in defining such provinces although both evolutionary (area cladograms, etc.) and ecological (comparative dominance hierarchies) criteria may be used. The distinction between faunal (or floral) province *vs* region *vs* realm, etc., is nowhere rigorously defined (or at least not widely accepted).

**faunal stratification**

**estratificación faunística**

Faunal classification by estimate of antiquity of faunal group membership.

**faunistics**

**faunística**

The study of fauna's or faunal assemblages

**feeding guild**

**gremio alimentario**

A group of heterotrophic (*qv*) species, not necessarily taxonomically related, that feed in similar ways on similar organisms or nutrient sources (*cf.* depensatory compensation).

**Ferrell Cell**

See Hadley Cell.

**fidelity**

**fidelidad**

Ecology: The degree of restriction of a particular species to a particular habitat, community or association.

**filter**

**filtro**

Biogeography: Route along which dispersal is likely for some groups but not others; a semibarrier.

**fine-grain exploitation**

**alimentación no selectiva**

Use of resources, particularly food resources, nonelectively but harvesting them in direct proportion to their occurrence in the environment (*cf* coarse-grain exploitation, electivity).

**finfish *vs* shellfish**

Fisheries biology: Unforgivable fisheries jargon distinguishing vertebrate fishable species from invertebrate fishable species.

**firth**

**ría**

Scottish name for a sea inlet, generally relatively deep and narrow.

**fisheries biology**

**biología pesquera**

Study of the biology of exploited populations of fishes and other aquatic organisms, and of exploitation and management techniques (*cf* ichthyology).

**fitness**

**aptitud, adecuación**

Evolution: Relative probability of survival and reproduction of a given genotype within a population. Sometimes referred to as Darwinian fitness.

**fjord**

**fiordo**

Long narrow U-shaped coastal inlet usually representing the seaward edge of a glaciated valley that has been partially submerged.

**floating aquatic plants**

**plantas acuáticas flotantes**

Aquatic plants that float on or just below the surface of the water. May refer to marine or freshwater plants including algae.

**flood tide**

**marea creciente**

Incoming tide or rising tide in the tidal cycle (*cf* ebb tide).

**flora**

The plant life of a given region (*cf* fauna, biota) or geological period.

**floristics**

**florística**

The biogeography of plants (*cf* phytogeography).

**flotsam**

Debris floating at sea surface or washed onshore, usually derived from the wreckage of a vessel or lost from a vessel at sea (*cf* jetsam).

**fluvial**

Of or referring to rivers or river valley ecosystems (*cf* rhithron).

**fluviatile**

**lótico**

Lotic (*qv*); inhabiting rivers and streams (*cf* rhithron).

**food chain/food web**

**cadena alimentaria, red alimentaria**

Ecology: conceptualization to illustrate the transfer of energy from primary producers (autotrophs) through a series of consumers (herbivores, carnivores). Termed a food chain when few or no side branches are represented and a food web as the complexity of the illustrated hierarchy increases.

**food chain magnification**

**magnificación alimentaria**

Usually refers to accumulation of non-excreted or metabolized compounds or materials, often toxic, in greater concentrations at each step of consumption in a food chain. Examples: ciguatera or DDT accumulation.

**forage fish**

Fisheries biology: General term for economically unimportant fish, usually of smaller size, considered to be food or forage for larger, economically important fish, either commercial or sportfish species.

**foraminiferan ooze**

**fango de foraminíferos, cieno de foraminíferos**

A calcareous deepsea sediment in which 30% or more of the material is composed of the tests of foraminifera.

**forcing functions**

**función forzante**

Functions that energize, control and canalize the outcome of a particular set of events, used particularly to refer to physical phenomena such as the effect of wind fields on ocean current systems. Originally referred to mathematical functions in the appropriate mathematical modeling efforts for the study of physical oceanographic forcing.

**forma**

**forma**

Systematics: Undefined infraspecific ranking where recognizable within species variation occurs, related to geography or ecology, but where available information does not allow informed supposition as to cause, whether genetic or ecotypic or both. The category "forma" has no formal recognition in the ICZN (*qv*) or ICBN (*qv*).

**formation**

**formación**

Geology: Fundamental unit used in lithostratigraphy. Specific features such as chemical composition, origin (sedimentary, volcanic, metamorphic), fossil content, etc., serve to distinguish rock formations. Formations may be subdivided into members and together several formations may constitute a group.

**Formenkreis**

**círculo de formas**

An aggregate of allopatric subspecies or species; superspecies.

**founder effect**

**efecto fundador**

The genetic effect of establishment of an isolated population by one or a very few individuals representing a very small fraction of the genetic pool from which it (they) are drawn. Selection may soon yield genetic combinations quite different from those found in the ancestral population.

**fragility**

**fragilidad**

Ecology: A measure of the difficulty or likelihood of restoration of a community or ecosystem to preexisting structure and function following a major perturbation (*cf* resilience).

**free-swimming**

**libre nadador**

The ability of an aquatic organism to move actively under its own locomotive efforts. Generally used to describe the motile stages of larger organisms such as fish or crustaceans which have demersal or planktonic eggs or larval stages. Implies some degree of independence from pure advection by water movements. (*cf* nekton)

**freshwater**

**aguas dulces**

Water having a salinity less than 0.5 ppt.

**fringing reef**

**arrecife de orla, arrecife costanero**

Geological structure, generally of biological origin (usually a coral reef (*qv*)) along the border of a land mass (continent or island), lacking a lagoon or substantially so.

**front**

**frente**

Oceanography/Meteorology: Boundary or boundary region separating water or air masses of different origins and characteristics.

**fugitive species**

**especie fugitiva, especie oportunista**

Ecology: Species typically found only in unstable or periodically extreme environments. Fugitive species typically have high "r" (*cf* r-selection) values, and can achieve initial high population abundances but tend to be displaced by competitively superior species early in succession (*qv*). Also called opportunistic species.

**functional morphology**

**morfología funcional**

Interpretation of the function of an organism or organ system by reference to its shape, form and structure.

**functional response**

**respuesta funcional**

Ecology: A change in the rate of predation by an individual predator in response to a change in density of the prey (*cf* numerical response).

**fundamental niche**

**nicho fundamental**

Ecology: Entire set of optimal conditions under which an organism is able to live and reproduce, in which the organism faces no negative coactive effects and in which the physical environment is optimal (*cf* realized niche).

**furiotile**

Pertaining to any partially disjunct body of water that connects with the main body only during high water.

## G

**game fish****peces deportivos**

Fisheries biology: General term for those species of fishes that are taken by sportsmen via hook and line fishing as contrasted with nongame or commercial species.

**gamma taxonomy****taxonomía gamma**

That aspect of taxonomy (*qv*) concerned with intraspecific populations as well as with phylogenetic trends.

**Gause's principle****principio de Gause**

The concept of competitive exclusion (*qv*).

**Gelbstoff**

A complex mixture of natural compounds (including humic acid) dissolved in seawater, characterized by light absorbance that increases with decreasing wavelength, giving yellow color to the water.

**gene flow****flujo génico**

Movement of genes within an interbreeding group that results from mating or gene exchange with immigrant individuals. Such an exchange may occur in one direction or in both directions.

**gene frequency****frecuencia génica**

The proportion of one allele to the total of all alleles at the same locus in the gene pool.

**generalist****generalista**

Ecology: A species having a broad habitat range or food preference (*cf* specialist).

**generalized track****paso generalizado, rama generalizada**

The pattern formed by overlaying individual tracks (*cf* track) of OTU's (*qv*) on a map and noting the area(s) of concordance in distribution. Where concordant the pattern is said to form a generalized track. Derived from Croizat's Panbiogeography and utilized in vicariance biogeography, but in fact independently used in pelagic biogeography before and concurrently, minus the terminology.

**generalized track/vicariance approach**

The essential method of vicariance biogeography which is based on the following steps: (1) look for concordance in the distribution of organisms; (2) attempt to understand disjunctions between putatively continuous generalized tracks in light of vicariance (*qv*) events (*cf* center of origin / dispersal approach; cladistic biogeography).

**generation**

**generación**

- (1) Biology: Formation of ...; production of ...  
(2) Ecology: All of the individuals produced within a single life cycle.

**genetic drift**

**deriva génica**

- (1) Genetic changes in populations caused by stochastic phenomena rather than by selection.  
(2) Random fluctuations of gene frequencies in a population such that the genes are not a perfectly representative sampling of the parental gene frequencies. Effects are more marked in small (such as founder) populations in which drift gives rise to random fixation of alternative alleles ( $qv$ ).

**genetic equilibrium**

**equilibrio génico**

Equilibrium in which the frequencies of two alleles ( $qv$ ) at a given locus are maintained at the same values generation after generation. A tendency for the population to attain such equilibrium and resist genetic change (at that locus) is termed genetic homeostasis.

**genetic polymorphism**

**polimorfismo génico**

The co-occurrence of two or more alleles ( $qv$ ) at the same locus in a population at frequencies that cannot be accounted for by recurrent mutation ( $qv$ ) alone (*cf* balanced polymorphism).

**genetics**

**genética**

The study of heredity and variation.

**genotype**

**genotipo**

Genetic constitution of an organism as opposed to the expression of that constitution (phenotype) which may be developmentally or environmentally canalized.

**genus**

**género**

A category ( $qv$ ) for a taxon including one species or a group of species, of common phylogenetic origin, separated from related similar units (genera) by a decided gap, the gap being in inverse ratio to the size of the unit (genus) (sometimes).

**geographic isolate**

**población aislada geográficamente**

A population that is separated by geographic barriers from the main body of the species.

**geographic isolation**

**aislamiento geográfico**

The separation of a gene pool by geographic barriers; the prevention of gene exchange between a population and others by geographic barriers. The usual starting point and requirement for the allopatric ( $qv$ ) model of speciation ( $qv$ ).

**geographical race**

**raza geográfica**

See subspecies.

**geography**

**geografía**

The study of areal differentiation of the earth's surface as shown in the character, arrangement and interrelationships over the world (or selected subarea) of such elements as climate, relief, soil, vegetation, surface currents, hydrographic properties, as well as the distribution of living organisms and their effects.

**geostrophic current (flow)**

**corriente geostrófica**

A macroscale (*qv*) current in the ocean or atmosphere that is the product of balance between gravitational forces (the pressure field) and the Earth's rotation (the Coriolis Effect). The geostrophic approximation ignores friction (as negligible) in the calculation of such currents.

**geotropic**

**geotrópico**

Directional response (geotaxis or growth) to the gravity field.

**gigantism**

**gigantismo**

The condition of being much larger than normal or exhibiting excessive growth; often associated with polyploidy (*qv*).

***Globigerina* ooze**

**fango de globigerinas**

A type of foraminiferan ooze (*qv*) with *Globigerina* tests a major constituent.

**Gondwanaland**

**Gondwana**

The southern supercontinent formed by the breakup of Pangaea in the Mesozoic (ca 150 million years BP) comprising the present South America, Africa, Arabia, Australia, Antarctica, India, and New Zealand (*cf* Laurasia).

**gonochorism**

**gonocorismo**

Pertaining to a population in which the sexes, male and female, are separate and usually occur in about equal numbers.

**grade**

**grado**

(1) A group of organisms similar in level of organization; an anagenetic advance (*cf* anagenesis).  
(2) Distinctive functional or structural improvement in the organization of an organism.

Grades may occur within a single lineage or be achieved independently in different lineages (*eg* "warmbloodedness" in tunas, birds, mammals and certain fossil reptiles) (*cf* clade).

**grallatorial**

Adapted for wading.

**grazing**

**pastoreo**

Consumption of autotrophs by herbivores. Also applies to consumption of pseudoflora (sessile invertebrates) by carnivores. In most marine systems, unlike terrestrial systems, there is little attempt to distinguish between browsing and grazing.

**greenhouse effect**

**efecto invernadero**

Warming effect of retention of long wave length (infrared) radiation by the lower atmosphere with relative transparency to transmission of short wave length radiation (visible light).

**gross primary production**

**producción primaria bruta**

Rate of carbon fixation by autotrophs per unit area (or per unit volume) per unit time (*cf* primary production).

**guild**

**gremio**

Ecology: A group of species that utilizes one or more aspects of environmental resources in much the same way, *eg* a feeding guild contains species that feed in similar ways on similar organisms or nutrient sources (*cf* compensatory compensation).

**gynochoric**

**ginocórico**

Pertaining to organisms dispersed by motile females.

**gyre**

**giro, vórtice**

Circular or spiral motion of water or air, used to describe a semienclosed current system, such as the macroscale (*qv*) subtropical anticyclonic (*qv*) gyres or such cyclonic (*qv*) gyres as occur in regions such as the Pacific Subarctic.

## H

**habitat**

**hábitat**

Ecology: Living place of an organism, defined by its location and physical, chemical and biological properties.

**hadal zone**

**zona hadal**

That part of the ocean that lies in the deep ocean trenches below the general (abyssal) level of the deep ocean floor.

**Hadley Cell**

**célula de Hadley**

Meteorology: Macroscale convective circulation in the lower atmosphere in which winds at the surface are equatorward and winds aloft are poleward, driven by differential latitudinal heating of the earth's surface by the sun. In the Northern Hemisphere the tropical Hadley Cell (trade wind zone) operates between the equator and approximately 30° N. The polar Hadley Cell (polar easterly zone) operates between the North Pole and roughly 60°N. In between, 30° to 60°N is the zone of the Ferrell Cell (zone of the westerlies). The Southern Hemisphere has a mirror image arrangement (approximately). This description is of the so-called Tricellular Model, which is descriptively useful but oversimplified.

**hadopelagic**

**hadopelágico**

Pelagic in depths greater than 6000 m (*cf* hadal zone; ultra-abyssopelagic).

**halocline**

**haloclina**

Any zone of rapid change of salinity, typically with depth as the principal independent axis.

**halodrymum**

**manglar**

A mangrove (mangal) community.

**halophilic**

**halofílico**

Thriving in (tolerant of) high salt concentrations in the environment.

**halophyte**

**halofítico**

Plant adapted morphologically and physiologically to grow in markedly saline environments, *eg Rhizophora, Salicornia, Spartina*.

**halosere**

Characteristic sequence of communities associated with developmental stages in plant succession in salt marshes.

**Hardy-Weinberg equilibrium**

**equilibrio de Hardy-Weinberg**

Law that states that gene and genotype frequencies will remain constant from generation to generation given a sufficiently large panmictic ( $q\gamma$ ) population and in the absence of genetic drift, mutation pressure, migration, and selective breeding.

**helic (helium)**

**de marjal, marisma, ciénaga**

Ecology: Pertaining to marshes or marsh communities.

**heliotropic**

**heliotrópico**

See phototropic.

**hemiplankton**

**hemiplancton**

See meroplankton.

**Hennig '86**

A widely used package of computer programs for phylogenetic analysis developed by J. S. Farris, Department of Ecology and Evolution, State University of New York, Stony Brook.

**herbivore**

**herbívoro**

Heterotroph that consumes plants or living plant material (or autotrophic protists or prokaryotes) (*cf* carnivore, detritovore, omnivore).

**hermaphroditism**

**hermafroditismo**

Bisexuality with both sexes present in the same individual. May be synchronous or sequential (*cf* protandry, protogyny).

**heterochrony**

**heteroconismo**

Dissociation during development of factors of shape, size and maturity, so that organisms mature in these and/or other respects at earlier or later growth stages. This leads to paedogenesis (*qv*) or recapitulation (*qv*).

**heterograde**

**heterógrado**

A non-uniform gradient of a factor in the water column, *eg* an oxygen minimum layer.

**heterosis**

Hybrid vigor; the selective superiority of heterozygous over homozygous individuals from either parental stock.

**heterospecific**

**heterospecífico**

Pertaining to a different species (*cf* conspecific).

**heterotrophic**

**heterotrófico**

(1) Required utilization of organic substrates (food) as a source of energy (*cf* autotrophic).

(2) Applied to consumer organisms, herbivores and carnivores, but may also be true of some plants capable of utilizing organic molecules as an energy source under certain conditions.

**heuristic**

**heurístico**

Serving to further investigation; any discovery, discourse or observation that tends to promote research or additional study, especially in a synthetic manner.

**hidroplankton**

**hidroplancton**

Plankton (*qv*) that achieve buoyancy by means of surface secretions.

**hierarchical system**

**sistema jerárquico**

Systematics: The grouping of individuals by a series of subdivisions or agglomerations to form a characteristic dendrogram (*cf* cladogram, phenogram) representative of relationships.

**higher aquatic plants**

**plantas acuáticas superiores**

General term for aquatic angiosperms, primarily freshwater.

**historical biogeography**

**biogeografía histórica**

The study of animal distribution with emphasis on evolution and over an evolutionary time scale, usually employing overlay of phylogenetic information on the distributional database (*cf* vicariance biogeography).

**holobenthic**

**holobético, holobentónico**

An organism that remains benthic throughout its entire life cycle.

**holopelagic**

**holopelágico**

Organisms that remain pelagic throughout their entire life cycle (*cf* meropelagic).

**holophyletic**

**holofilético**

See monophyletic.

**holophytic**

**holofítico**

Wholly plantlike in mode of nutrition, used of certain protists in opposition to holozoic (*qv*).

**holoplankton**

**holoplancton**

Organisms which are permanent (throughout their lifetime) members of the plankton (*qv*) (*cf* meroplankton).

**holotype**

**holotipo**

Taxonomy: The single specimen designated or indicated as "the type" ("name-bearer") by the original author at the time of publication of the original description in taxa at species-level rank (species, subspecies).

**holozoic**

**holozoico**

Wholly like an animal in mode of nutrition, used of certain protists in opposition to holophytic (*qv*).

**homoiosmotic**

**homoiósomótico**

Of or pertaining to organisms that are capable of regulation, to at least some degree, of internal salt/fluid content relative to the external milieu over the range of conditions specified.

**homiotherm (endotherm)**

**homeotermo (endotermo)**

**Organism that regulates body temperature by internal physiological and/or morphological mechanisms/processes (*cf* poikilotherm).**

**homologous**

**homólogo**

Describes a feature or character state between two taxa when thought to have the same evolutionary origin, regardless of current function (*cf* analogous).

**homology**

**homología**

A feature or state in two or more taxa that can be traced back to the same feature in a common ancestor of the taxa, regardless of function.

**homonym**

**homónimo**

Taxonomy: One of two or more identical but independently proposed names for the same or different taxa.

**homoplasy**

**homoplasia**

Phylogeny: Apparent synapomorphy due to parallelism (*qv*) or convergence (*qv*).

**homoscedasticity**

**homocedasia**

Statistics: Of or referring to the equality or homogeneity of variances among all samples being compared.

**horotelic**

**horotélico**

Normal or average rate of evolution per million years within a given taxonomic group (*cf* bradytelic, tachytelic). "Normal" is empirically determined for each group and may lack global meaning.

**host**

**huésped**

See parasite

**hybrid**

**híbrido**

Genetics: Individual plant or animal resulting from a cross between parents of differing genotypes. Typically applied to the product(s) of outcrossing between species.

**hybrid belt (zone)**

**zona de hibridación**

A zone of interbreeding between two species, subspecies or other unlike populations; zone of secondary intergradation.

**hybrid swarm**

A series of highly variable forms produced by the crossing and backcrossing of hybrids.

**hybridization**

**hibridación**

The crossing (interbreeding) of individuals belonging to two distinct natural

populations (principally species).

**hydatophytium**

**comunidad de plantas acuáticas sumergidas**

A submerged plant community.

**hydrarch succession**

**sucesión hidrara**

The natural progression of succeeding communities commencing in a habitat with abundant water; hydrosere. Typically refers to the succession from freshwater lake habitat to dry land.

**hydric**

**hidrobios**

A wet habitat or environment (*cf* xeric, mesic).

**hydrochemical front**

**frente hidroquímico**

An oceanic boundary (*qv*) region across which occur relatively sharp (change in value / change in distance) gradients in abiotic (*qv*) factors , often associated with a marked transition in oceanic community constituency and structure. For example the marked hydrochemical front at 10° S in the Indian Ocean.

**hydrochoric**

**hidrocórico**

Dispersed by the agency of water, used primarily of freshwater lotic (*qv*) habitats (*cf* advection).

**hydrographic gate**

**puerta hidrográfica**

A set of physical/chemical/biological conditions that may "toggle" a reference potential transport pathway (particularly for larval or juvenile forms) between barrier (*qv*) and corridor (*qv*). For example, coastal tide and meteorological conditions may interact to promote or prevent ingress of larval fishes from the coastal ocean to an otherwise suitable nearshore nursery area.

**hydrography**

**hidrografía**

Oceanography and Limnology: A branch of physical oceanography with emphasis on ocean currents, especially as they affect navigation, including preparation of navigation charts and of current and tide tables. The term is sometimes used more generally to refer to the study of ocean currents and associated phenomena *per se*.

**hydrologic cycle**

**ciclo hidrológico**

The water cycle; the global movement of water between atmosphere, hydrosphere and lithosphere.

**hydrology**

**hidrología**

Study of the flow of water in various states through the terrestrial and atmospheric environments and of interchange with sources and sinks in the sea.

**hydrophyte**

**hidrófita**

Plant that is adapted morphologically and/or physiologically to grow in water or very wet environments, used primarily of freshwater habitats.

**hydrostatic pressure**

**presión hidrostática**

The force per unit area exerted by a column of water; pressure increases by 1 atmosphere per 10 m vertically downward in a water column.

**hydrotaxis**

**hidrotaxis**

An orientational or movement response cued by the presence of a water or moisture stimulus.

**hydrotectonics**

**hidrotectónica**

Study of plate tectonics (*qv*) applied to ocean basins, principally from the standpoint of effects on ocean circulation, water mass formation and extent, and domain properties.

**hypactile**

Pertains to that part of the littoral zone exposed by the tide for less than one-quarter of the tidal cycle.

**hyperbenthic**

**hiperbético**

Living above but close to the substratum (suprabenthic) (*cf* epibenthic, endobenthic, engibenthic).

**hyperosmotic**

**hiperosmótico**

A solution that exerts a greater osmotic pressure than the solution of reference (*eg* sea water is hyperosmotic to teleost blood). (*cf* hypoosmotic, isosmotic).

**hypersaline**

**hipersalino**

Having a high salinity, well in excess of normal sea water; typical of isolated bodies of seawater with high evaporation rates (lacking or with restricted free access to the sea).

**hypodigm**

**hipodigma**

Taxonomy: The entire known material of a species available for study (not that uncommonly employed in work on deepsea organisms).

**hypolimnion**

**hipolimnio**

Lower, cooler, noncirculating water in a thermally stratified temperate lake in summer (*cf* epilimnion).

**hyponeuston**

**hiponeuston**

Organisms living immediately below the surface film of a body of water (*cf* epineuston).

**hypoosmotic**

**hioposmótico**

A solution that exerts a lower osmotic pressure than the solution of reference (*eg* freshwater is hypoosmotic to teleost blood). (*cf* hyperosmotic, isosmotic).

**hypoxic**

**hipóxico**

Waters undersaturated (low) in dissolved oxygen content, as in oceanic oxygen minimum layers (*cf* anoxic).

## I

**ICBN (International Code of Botanical Nomenclature)**

**(CINB) Código Internacional de Nomenclatura Botánica**

See International Code of Botanical Nomenclature.

**ichthyology**

**ictiología**

The study of fishes, with emphasis on comparative and evolutionary biology, broadly defined, but including studies on all aspects of the biology of fishes as it relates to natural, unexploited populations (*cf* fisheries biology).

**ichthyoplankton**

**ictioplancton**

Fishes, typically larvae and juveniles, in the meroplankton (*qv*).

**ICZN (International Code of Zoological Nomenclature)**

**(CINZ) Código Internacional de Nomenclatura Zoológica**

See International Code of Zoological Nomenclature.

**-idae**

Suffix; ending of the name of a subclass in the botanical or of a family in the zoological literature.

**immigration**

**inmigración**

The movement of an individual or group into a different population or geographical region (*cf* emigration).

**-inae**

Suffix; the ending of the name of a subtribe in botanical nomenclature and of a subfamily in zoological nomenclature.

**indeterminate growth**

**crecimiento indeterminado**

Growth that continues throughout the life span of an individual (although commonly in differing proportion of total length or mass as a function of age) (*cf* determinate growth).

**index species**

**especie indicadora**

(1) Ecology: Species characteristic of a particular community, ecosystem or habitat.

(2) Paleontology: Species characteristic of a particular rock unit or time zone.

**Indian Ocean**

**Océano Índico**

Third largest of the main oceans of the world. Area =73,443,000 km<sup>2</sup>. The northern Indian Ocean is dominated by intense monsoonal wind fields which cause dramatic surface current changes.

**indicator species**

**especie indicadora**

A species indicative of a particular environmental regime, organismal assemblage or biogeographic area. Usually used in the ecological sense to indicate (serve as an index of) a particular environmental regime.

**indifferent species**

**especie indiferente**

Species occurring in a given community but not showing strong fidelity (*qv*) to that community, occurring in one or more additional communities as well (*cf* accidental, exclusive, preferential, selective species).

**indigenous**

**indígena**

See endemic.

**-ineae**

Suffix; the ending of the name of a suborder in botanical nomenclature.

**infauna**

The total animal life within a sediment (*cf* epifauna, benthos).

**infralittoral**

**infralitoral**

Intertidal region exposed only at the lowest spring tides.

**infraspecific**

**infraespecífico**

Below (contained within) a taxon assigned the rank (*qv*) of species. Ranges from panmictic (*qv*) single populations to formae (*qv*) to subspecies (*qv*), but on a continuum, with any attempt to draw sharp definitional limits likely to fail. Infraspecific groupings are not accorded formal recognition in the ICZN (*qv*).

**ingroup**

Systematics: The collection of OTU's (*qv*) under study, for which an attempt at phylogenetic elucidation is being made.

**-ini**

Suffix; the ending of the name of a tribe in the zoological literature.

**inland sea**

**mar interior**

Extensive body of water that is largely or entirely surrounded by land, *eg* Black Sea, Baltic Sea, Caspian Sea (*cf* epeiric sea).

**inlet**

**entrada**

- (1) A recess, such as a bay or cove, along a coast.
- (2) A stream mouth or bay leading inland, as from the ocean; an estuary.
- (3) A narrow passage of water, as between two islands.

**inquilinism**

**comensalismo**

Symbiosis (*cf* commensalism) in which one organism (the inquiline) lives within another without causing damage to the host (*eg* crustaceans and fishes inquiline in sponges); also used to describe living within the burrow, nest or other domicile of another species.

**inshore**

**hacia tierra**

General term for ocean regions in close proximity to land (*cf* offshore).

**insolation**

**insolación**

The amount of incoming solar radiation received over a unit area of the Earth's surface per stated unit of time.

**instantaneous species**

**especie instantánea**

A species wherein a single individual is capable of establishing a new species population distinct from the parental species.

**instar**

**estadío**

Any intermolt stage in the development of an arthropod.

**interannual**

**interanual**

Pertaining to events that vary on a year-to-year basis, particularly seasonally-related events.

**intermediate disturbance hypothesis**

**hipótesis de perturbación intermedia**

Hypothesis that diversity in a community is greatest when disturbance (perturbation) is intermediate on scales of frequency and intensity.

**intermediate water mass**

**masa de agua intermedia**

Water mass lying between a principal upper water mass or water masses (*eg* South Atlantic Central Water) and a deep water mass (or masses; *eg* North Atlantic Deep Water), such as Antarctic Intermediate Water.

**internal wave**

**onda interna**

Wave that forms within a water column at the boundary interface between two water masses (layers) differing in density.

**International Code of Botanical Nomenclature (ICBN)**

**Código Internacional de Nomenclatura Botánica (CINB)**

The internationally adopted set of rules governing botanical nomenclature.

**International Code of Zoological Nomenclature (ICZN)**

**Código Internacional de Nomenclatura Zoológica (CINZ)**

Regulations governing the scientific naming of animals. The International Commission on Zoological Nomenclature is the international authority that establishes those regulations and supervises their application.

**interspecific**

**interespecífico**

Between species, interaction between or condition described for two or more species (*cf* intraspecific).

**intertidal zone**

**zona intertidal, zona intermareal**

Area between mean high-water level and mean low-water level in the coastal region.

**Intertropical Convergence Zone (ITCZ)**

**Zona de Convergencia Intertropical**

Low latitude zone of convergence (*qv*) between air masses flowing equatorward as part of the lower limb of the tropical Hadley Cell (*qv*). Zone of the doldrums (*qv*). The ITCZ moves latitudinally with the progression of the seasons.

**interzonal**

Between two zones; used of pelagic species inhabiting two or more defined depth zones.

**intraspecific**

**intraespecífico**

Within a species, interaction between conspecific individuals or condition described for a single species (or selected populations thereof). (*cf* interspecific).

**intrinsic rate of increase**

**tasa intrínseca de crecimiento**

The "little r" of the exponential (*qv*) and logistic (*qv*) models of population increase.

**introduced species**

**especie introducida**

A species transported to a new geographic area beyond the normal range of the species, usually through human agency or intervention, as contrasted with native (*qv*) species.

**introgressive hybridization**

**hibridización introgresiva**

The spread of one or more genes of one species into the gene pool of another species as a result of hybridization.

**inverse estuary**

See negative estuary (*cf* estuary).

**inverted pyramid**

**pirámide invertida**

Ecology: A situation where a rapid rate of turnover allows a small biomass of prey to support a larger biomass of predators with a slower turnover. Not uncommon in aquatic systems where primary producers (phytoplankton) are small and divide rapidly whereas zooplanktonic herbivores are larger and longer-lived (*cf* ecological pyramid).

**irruption**

**irrupción**

Sudden change or oscillation in the population density of an organism, often a rapid growth of population size followed by a crash.

**island biogeography**

**biogeografía de islas**

A quantitative approach to ecological biogeography (*qv*) based on an empirically determined and mathematically modeled relationship between island area, distance of island from mainland species source areas, and equilibrium species richness. The equilibrium is ultimately a balance between immigration and extinction. Applies to "habitat islands" as well as to geographic islands.

**island effect**

**efecto de isla**

Putative occurrence of large concentrations of meso- and bathypelagic organisms around island chains and submerged ridges in otherwise oligotrophic oceanic areas, reflecting the relatively higher productivity around these surface and subsurface features.

**isobar**

**isobara**

Line (isopleth) of equal pressure. Contours of isobaric surfaces are commonly drawn in weather charts to forecast winds and in oceanography to calculate geostrophic flow.

**isobath**

**isobata**

Line (isopleth) of equal depth, commonly used to represent depth contours on a chart of subsurface features.

**isoenzyme**

**isoenzima**

See isozyme.

**isolating mechanism(s) 1. Definition**

**mecanismo de aislamiento 1. Definición**

A property (ies) of individuals that prevents successful interbreeding or reproduction with individuals that belong to different populations (prezygotic vs postzygotic isolating mechanisms).

**isolating mechanism(s) 2. Categories.**

**mecanismo de aislamiento. 2. Categorías**

Premating (extrinsic): ecogeographical, habitat, seasonal, ethological, mechanical

Postmating (intrinsic): gametic, developmental, hybrid inviability, hybrid sterility, selective hybrid elimination.

**isolation**

**aislamiento**

Evolution: Separation of two populations so that they are prevented from interbreeding, whether by extrinsic (premating) or intrinsic (postmating) mechanisms.

**isolume**

**isoloma**

Line (isopleth) of equal light intensity.

**isometry**

**isometría**

Growth in which the relative proportions of body parts remain constant with change in total body size. (*cf* allometry).

**isonome**

A line on a chart or map connecting points of equal abundance of a species.

**isoosmotic (isosmotic)**

**isoosmótico**

Isotonic; having the same osmotic pressure (*cf* hypoosmotic, hyperosmotic).

**isophene**

**isofena**

(1) A line on a chart or map connecting points having the same frequency of occurrence of a given phenotype; phenocontour.

(2) A line on a chart or map connecting points at which seasonal events occur on the same date; isochronal line.

**isopleth**

**isopleta**

A line connecting equivalent values of physical, chemical or biological parameters, commonly used to construct contour charts.

**isopycnal**

**isopicna**

Line (isopleth) of equal density.

**isostasy**

**isostasis**

Concept that large masses of the earth's crust tend toward a "floating" equilibrium and that changes in the mass/position of one block will be compensated for by the uplifting or sinking of other blocks.

**isotherm**

**isoterma**

Line (isopleth) of equal temperature.

**isozyme**

**isozima**

Form of enzyme that exists in two or more structural forms easily separable and identifiable by electrophoretic methods. Widely used in studies of allelic frequency variation in populations (*cf* allozyme).

**ITCZ**

See Intertropical Convergence Zone.

**iteroparity**

**iteroparidad**

Situation in which a given individual normally reproduces more than once in its reproductive lifetime (*cf* semelparity).

## J, K

**jet**

Oceanography, meteorology: Directed, concentrated, high-speed flow of water or air, such as the jet streams in the atmosphere or currents such as the Somali Current during peak Southwest Monsoon.

**jetsam**

Floating debris at sea surface or washed ashore, deliberately cast off from a vessel at sea (*cf* flotsam).

**Jordan's laws**

**ley de Jordan, regla de Jordan**

(1) Observation that the closest relatives of a species are found immediately adjacent to it but isolated from it by a geographical barrier.

(2) Observation that individuals of a given fish species develop more vertebrae in a cold climate than in a warm one (temperature during a critical phase of developmental determination appears to be controlling; true in general of serial meristic (*qv*) character values).

**K-selection**

**K-selección**

Selection for maximizing competitive ability, the "strategy" of equilibrium species, typically a response to stable and/or predictable environmental resources. Associated features: low fecundity, high juvenile survivorship, high parental investment per individual offspring, late maturity.

**keystone predator**

**predador clave**

A predator (*qv*) whose activities tend to maintain higher community diversity than would be true if the predator were absent. Predation is viewed as reducing competition between two or more target species below the point where competitive exclusion (*qv*) takes place.

**kin selection**

**ortoselección**

Form of natural selection in which the "altruism" of an individual benefits its own close relatives and thereby helps to ensure the survival of at least some of its own genes.

**knot**

**nudo**

Unit of velocity equal to one nautical mile per hour (0.515 m/sec).

**kollaplankton**

Plankton (*qv*) rendered buoyant by encasement in gelatinous envelopes; also spelled collaplankton.

**krill**

Euphausiid crustaceans occurring in dense swarms, especially *Euphausia superba* of the Southern Ocean, a principal food source for many Southern Ocean fishes, sea birds, and marine mammals.

**kurtosis**

**curtosis**

Statistics: One measure of departure of a frequency distribution from a normal distribution, quantified in terms of relative peakedness (leptokurtic) or flatness (platykurtic) (*cf* skewness).

**L**

**labile**

**lábil**

Plastic; readily modified.

**lacustrine**

**lacustre**

Pertaining to or living in lakes or ponds (*cf* lentic).

**lagoon**

**albufera, laguna costera**

Coastal body of shallow water characterized by a restricted connection with the sea or lake.

**Lagrangian measurement**

**medición lagrangeana**

Measurement of currents in which the path followed by each fluid particle is traced as a function of time (*cf* Eulerian measurement). Classic methods of Lagrangian measurement include passive drifters such as buoys, drogues or dye release (not to mention messages in bottles).

**land bridge**

**conexión terrestre**

Connection between two land masses, especially continents, forming a migrational corridor (*qv*). Before the widespread acceptance of continental drift, putative existence of former land bridges was invoked to explain faunal and floral similarities of now disjunct land areas.

**Langmuir circulation**

**circulación de Langmuir, células de Langmuir**

A surface system of vortices and antivortices resulting in lines or zones of upwelling and downwelling, divergences and convergences, often expressed at the surface in so-called drift lines. Set up by light but steady winds, a major source of near surface plankton patchiness.

**latiphenic**

**latifénico**

See monomorphic.

**latitudinal diversity gradient**

**gradiente latitudinal de diversidad**

The trend, widespread but not universal among groups of plants and animals, of exhibiting a monotonic increase in diversity when passing from polar regions toward the equator.

**Laurasia**

The northern supercontinent formed by the breakup of Pangaea in the Mesozoic (ca 150 million years B. P.), and comprising North America, Greenland, Europe, and Asia excluding India (*cf* Gondwanaland).

**law of the minimum**

**ley del mínimo**

Principle that productivity of an autotroph is determined by the availability of the scarcest required nutrient, such that different nutrients may be limiting depending upon the specific needs of the autotroph and the availability of all other requisite nutrients. More correctly, Liebig's law of the minimum.

**league**

An archaic unit of distance, equal to about 3 nautical miles.

**lecithotrophic**

**lecitotrófico**

Pertaining to developmental stages that depend upon eggs rich in yolk.

**lectotype**

**lectotipo**

Taxonomy: One of a series of syntypes (*qv*) which, subsequent to the publication of the original description (of a species), is selected and designated to serve as the "type" ("name-bearing") specimen.

**leeward**

**barlovento**

Pertaining to the side facing away from a wind or water current.

**lentic**

**léntico, lenítico**

Applied to a freshwater habitat characterized by calm or standing water, *e.g.* ponds, lakes, swamps and bogs (*cf* lotic, lacustrine).

**leptopel**

Large organic molecules or aggregates of colloidal proportions suspended in water.

**leptophenic**

**leptofénico**

See monophormic.

**Liebig's law of the minimum**

**ley del mínimo de Liebig**

See law of the minimum.

**life cycle**

**ciclo de vida**

Ecology: Series of developmental changes undergone by individuals comprising a population including fertilization, reproduction, death, and replacement. The life "cycle" is linear with respect to individuals but cyclical with respect to populations.

**life history strategy**

**estrategia del ciclo vital**

The complex interreactions between life (*qv*) cycles and environments that allow the individual (and therefore the species) to survive and reproduce.

**limicolous**

**limícola**

Inhabiting mud.

**limiting factor**

**factor limitante**

Ecology: In the sense of the law of the minimum (*qv*), that factor which limits a population, especially used in application to that factor limiting phytoplankton growth under stated conditions.

**limivorous**

**iliófago**

Feeding on mud; limophagous.

**limnetic zone**

**zona limnética**

The area in deeper and/or more extensive freshwater ecosystems that lies above the compensation depth but beyond the littoral zone. The limnetic and littoral zones together comprise the euphotic zone.

**limnium**

**limnobios**

A lake community.

**limnodic**

Pertaining to salt marshes.

**limnodium**

**limnodio**

A salt marsh community.

**limnology**

**limnología**

The study of freshwater ecosystems, especially lakes.

**limophagous**

**iliófago**

Feeding on mud; limivorous.

**linkage**

**ligamiento**

- (1) The dependency of one function or event upon the occurrence of another event or function.
- (2) Genetics: Association of genes on the same chromosome.

**lithophagic**

Pertaining to organisms that erode or bore into rock (*cf* endolithic).

**littoral**

**litoral**

Ecology: In marine systems the shoreline or intertidal zone. In lakes and shallow freshwater ecosystems the zone where light penetration to the bottom allows the growth of rooted plants.

**littoral fringe**

The landward edge of the littoral (*qv*) zone.

**locus**

Genetics: Specific place on a chromosome where a gene is located. At each locus is one gene, which, if it can occur in several different forms (alleles), is represented at a given locus by only one of those alleles (*qv*).

**logistic growth**

**crecimiento logístico**

A model of population growth explicitly stated as  $dN/dt = rN ((K-N)/K)$  where N is the number of individuals at time t, r is the intrinsic rate of population increase (here a constant, independent of N, as in the exponential model (*qv*)), and K is a special and limiting value of N, the so-called carrying capacity of the environment at which  $dN/dt=0$ .

**longevity**

**longevidad**

(1) Biology: The life span (duration, persistence) of an individual.

(2) Paleontology: Applied to the persistence of a taxon, species, genus, family, over time.

**longshore**

**a lo largo de la costa**

Referring to currents or movement parallel to the coastline.

**lotic**

**lótico**

Referring to a freshwater habitat characterized by running water, *eg* springs, streams, and rivers (*cf* fluvial, rhithron, lentic).

**Lotka-Volterra equations**

**ecuaciones de Lotka-Volterra**

Based on the logistic model (*qv*), simple equations predicting results of predator-prey interaction in two-species competition.

**luciferous**

**bioluminiscente**

Light-producing, bioluminescent.

**luminescence**

**luminiscencia**

Production of light. Biological luminescence (bioluminescence) involves chemical reactions (luciferin, luciferase) to produce light by living organisms. Bioluminescence has evolved independently in a variety of organisms.

**luticolous**

**lutícola**

Inhabiting mud.

**M**

**macroevolution**

**macroevolución**

Evolution (*qv*) above the species level, the development of new higher taxa, genera, families, orders, etc.

**macronutrient**

**macronutriente**

An inorganic or organic nutrient compound or element needed in relatively large amounts for autotrophic productivity. Nitrate and phosphate are the most commonly limiting macronutrients in oceanic systems.

**macroorganisms**

**macroorganismos**

General term for large organisms, typically visible to the naked eye, as contrasted with microorganisms (*qv*).

**macrophyte**

**macrófita**

A large macroscopic plant or alga, used especially in reference to aquatic forms, especially algae, such as kelps.

**macroplankton**

**macroplancton**

Plankton (*qv*) with maximum dimension on the order of 2 - 20 cm.

**macroscale feature**

**macroescala**

Periodic variation in order of years to millennia and/or many hundreds to thousands of kilometers (*cf* mesoscale feature).

**macrosmatic**

Pertaining to an organism possessing a highly developed sense of smell.

**macrozooplankton**

**macrozooplancton**

Large zooplankton (*qv*), 2 to 20 cm in maximum dimension.

**malacology**

**malacología**

Study of the biology of mollusks, most commonly used in reference to studies of bivalves and gastropods.

**map**

**mapa, carta**

A graphic representation of part or all of the earth's surface including depiction of features of interest to the cartographer and the intended audience.

**marine biology**

**biología marina**

Study of the biology of marine organisms (*ie* physiology, biochemistry, etc) apart from their roles in marine ecosystems as contrasted with biological oceanography (*qv*).

**marine ecology**

**ecología marina**

Ecology (*qv*) of marine organisms.

**marine mammal**

**mamífero marino**

A mammal that carries out all or virtually all life history functions in the marine environment. All except cetaceans and sirenians come ashore for courtship, breeding, birthing and early care of the young. Includes mammals in the orders Cetacea, Sirenia, Pinnipedia, and Carnivora (*Enhydra*, and, considered by some, *Ursus maritimus*).

**marine snow**

**nieve marina**

Organic aggregates formed by micro-organisms in association with detritus.

**maximum sustained yield**

**cosecha máxima sostenible**

The maximum yield or crop which may be harvested year after year without damage to the system; applied to agriculture, husbandry, and exploitation of natural populations by humans; commonly employed abbreviation: MSY.

**megaplankton**

**megaplacton**

Plankton (*qv*) with maximum dimension on the order of 20 - 200 cm.

**meiobenthos**

**meiobentos**

Benthic organisms such as foraminifera, small nematodes and juvenile macroinvertebrates, 100 - 1000 mm in maximum dimension.

**meridional**

Term used to describe objects or events mainly in a latitudinal (north-south) direction, *eg* the meridional flow of eastern and western boundary currents (*cf* zonal).

**meristic character**

**caracter merístico**

A character that can be counted, such as number of vertebrae, number of fin rays, number of setae, etc.

**meromictic**

**meromítico**

Pertaining to a permanently stratified lake, usually resulting from a significant temperature or salinity difference (and hence density difference) between the epilimnion (*qv*) and hypolimnion (*qv*).

**meropelagic**

**meropelágico**

Aquatic organisms that are only temporary members of the pelagic (*qv*) community (*cf* holopelagic).

**meroplankton**

**meroplancton**

Invertebrate larvae inhabiting the plankton (*qv*) only prior to metamorphosis, adults being benthic; also termed hemiplanktonic (*cf* holoplankton).

**mesic**

See xeric.

**mesopelagic**

**mesopelágico**

- (1) The stratum between 200 and about 1000 m.  
(2) Corresponds to the disphotic (*qv*) zone where light cues result in diel behavioral responses such as diel vertical migration but in which light is insufficient to support net positive productivity.

**mesophenic**

See monomorphic.

**mesoplankton**

**mesoplancton**

Plankton (*qv*) with maximum dimension on the order of 0.2 - 20.0 mm

**mesoscale eddy**

**torbellino de mesoescala**

An eddy (*qv*) with a diameter on the order of a few tens to a few hundreds of kilometers, *eg* warm and cold core rings, persisting over a period of weeks to months (sometimes longer).

**mesoscale feature**

**mesoescala**

Periodic variation on the order of weeks to months and/or tens to a few hundreds of kilometers (*cf* macroscale feature).

**metapopulation**

**metapoblación**

A set of partially isolated populations belonging to the same species. The populations are able to exchange individuals and recolonize sites where the species has recently been extirpated (*qv*).

**microclimate**

**microclima**

The atmospheric characteristics prevailing within a small space, usually in the layer near the ground, affected by diel surface temperature changes and by vegetation or lack thereof.

**microevolution**

**microevolución**

Evolutionary change within species (as opposed to macroevolution, the origin of higher taxa), may involve anagenesis (*qv*) or cladogenesis (*qv*).

**microhabitat**

**microhábitat**

The topographic analogue of microclimate (*qv*) - a spatially definable subunit of a much larger habitat presenting organisms with a particular subset of resource and physiological opportunities and limitations.

**micronekton**

**micronecton**

Animals at the interface between plankton and nekton, able to sustain considerable mobility but incapable of maintaining horizontal position against continuous advection. Includes most mesopelagic migratory and nonmigratory fishes, *eg* Myctophidae, as well as such large zooplankton as euphausiid and sergestid crustaceans.

**micronutrient**

**micronutriente**

Organic or inorganic element or compound needed only in relatively small amounts by living organisms for autotrophy (*cf* macronutrient).

**microorganism**

**microorganismo**

An organism of microscopic or submicroscopic size, especially a bacterium or protozoan (*cf* macroorganism).

**microplankton**

**microplancton**

Plankton (*qv*) with maximum dimensions on the order of 20 - 200 microns.

**mictic**

**míctico**

Pertaining to the pattern of water circulation in a lake, *eg* holomictic (*qv*), meromictic (*qv*), etc.

**mid-depth species**

**especie de profundidades medias**

See midwater species.

**mid-ocean ridge**

**cresta centro-oceánica**

A topographical feature of the deep ocean floor comprising mountain ridges, rift valleys, and so forth, presumed to be sites of formation and spreading of new ocean floor, *eg* the Mid-Atlantic Ridge, Carlsberg Ridge, East Pacific Rise, etc.

**midwater species**

**especie de profundidades medias**

For oceanic species, a catchall term applied to meso- and bathypelagic species.

**migration**

**migración**

- (1) Nonrecurrent directional movement or recurrent seasonal movement (as by tuna).
- (2) Recurrent daily movement for feeding and for shelter-seeking or other purposes, *eg* diel vertical migration or (coastal) daily on/off reef migration by fishes such as squirrelfishes, grunts and some snappers.

**milky seas****mar lechoso**

Seas in which surface waters are brilliantly lit (visible at night) by bioluminescent organisms (presumably bacteria or protists). Milky seas may extend (in shipboard perspective) from horizon to horizon. They have been most commonly reported in the equatorial and north Indian Ocean.

**mixed layer****capa de mezcla**

Surface layer of the sea in which essentially isothermal conditions (above the main or seasonal thermocline) result in virtually isopycnal (*qv*) conditions throughout the layer, allowing complete mixing and overturn within the layer by the wind.

**molecular clock****reloj molecular**

The hypothesis that point mutations occur at a sufficiently regular interval to permit the dating of phylogenetic dichotomies (cladogenesis, *qv*). It assumes a direct relationship between the extent of molecular divergence and the time of ancestral separation of the two branches.

**monomictic****monomíctico**

Applied to lakes in which only one seasonal period of free circulation (turnover) occurs each year. Typical of high latitude lakes.

**monomorphic****monomórfico**

Pertaining to a population or taxon showing no genetically fixed discontinuous variation, therefore comprising a single discrete morph. Continuous (unimodal) variation may occur within the population with an extremely broad (latiphenic), moderately broad (mesophenic), or narrow (leptophenic) range of expressed variation.

**monophyletic****monofilético**

Phylogeny: A group based on propinquity of descent, includes only branches meeting the cladistic definition of relationship (*qv*) and includes all such branches for the level of the cladogram in reference (holophyletic).

**monothetic****monotético**

Applied to a taxon defined uniquely by autapomorphy, *ie* by one or more uniquely diagnostic derived feature(s) shared by all members of that taxon but not with members of any other taxon (except via homoplasy (*qv*)).

**monotopic****monotópico**

Occurring in a single locality or geographic area (*cf* polytopic).

**monotypic****monotípico**

A taxon containing only one immediately subordinate taxon, as a genus containing only one species.

**monotypic species**

**especie monotípica**

A species not divided into recognizably different subspecies or genetically different populations (*cf* polytypic species).

**monsoon**

**monsón**

A seasonal change of wind field direction and associated climatic properties (especially rainfall) resulting from widespread temperature changes over land and water in the subtropics.

**monsoon gyre**

**giro monsónico**

Refers to complete reversals of current flow in the equatorial Indian Ocean associated with the alternation of the Southwest and Northeast Monsoons.

**morphocline**

**morfoclina**

Morphological transformation series - a graded series of character states of a homologous character.

**morphotype**

**morfotipo**

(1) Taxonomy - A specimen selected to represent a given intrapopulation variant (morph); has no official ICZN status.

(2) Evolution - A list of the morphological character states presumed present in an ancestral species.

**mosaic evolution**

**evolución en mosaico**

Differential rates of evolution of various adaptive attributes within the same evolutionary lineage.

**motile**

**móvil**

Moving or having the power to move spontaneously.

**MSY**

See maximum sustained yield .

**multivariate**

**multivariado**

Statistical techniques or approaches using more than one variable simultaneously to describe similarities and differences between the groups or factors of reference.

**mutation**

**mutación**

Genetics: Process by which a gene or chromosome undergoes structural change.

**mutualism**

**mutualismo**

A form of symbiosis (*qv*) in which both parties (species, individuals) benefit from the association. Facultative mutualism is sometimes considered a coordinate alternative category: protocooperation (*qv*) (*cf* amensalism, commensalism).

***n. sp.***

Abbreviation of the Latin *species nova*, new species.

**nanoplankton**

**nanoplancton**

Plankton (*qv*) with maximum dimension on the order of 2.0 - 20.0 microns

**nascence**

The origin or commencement of a community in a previously barren area.

**natatorial**

**natatorio**

Adapted for swimming.

**native species**

**especie nativa**

A species considered to occur naturally in a given geographic area, as contrasted with an introduced (*qv*) species.

**natural classification**

**clasificación natural**

A hierarchical classification based on hypothetical phylogenetic relationships such that the members of each category in the classification share a single common ancestor (*cf* artificial classification).

**natural selection**

**selección natural**

Differential survival and reproduction in which the total environment determines which individuals (on average) survive to reproduce and pass their genes to the next generation.

**nautical mile**

**milla náutica**

(1) International: a secondary SI unit equal to 1,852 m, the average distance on Earth's surface subtended by one minute of latitude.

(2). A secondary fps unit, 6080 feet (UK) or 6080.27 feet (U. S.), the average distance (approx.) on Earth's surface subtended by one minute of latitude.

**NE monsoon**

**monsón NE**

A seasonal wind field associated with cold temperatures and high pressure over the Asiatic mainland, in the northwestern Indian Ocean; the Northeast Monsoon blows from northeast to southwest during the period November to March.

**neap tides**

**mareas de cuadratura**

Lower than average tides (*qv*) associated with quadrature (*qv*) of sun and moon.

**nearshore**

**costero, nerítico**

Areas of inner neritic (*qv*) zone.

**negative binomial distribution**

**distribución binomial negativa**

A mathematical distribution used to model aggregated or contagiously dispersed populations (*qv*).

**negative estuary**

**estuario negativo**

An estuary whose waters have salinities greater than the adjacent sea, as contrasted with a normal estuary of lower salinity (*cf* estuary, neutral estuary).

**nekton**

**necton**

Animals capable of maintaining position and even moving against local water currents,  
*eg* migratory fishes such as tunas.

**neontology**

**neontología**

Science dealing with the life of Recent organisms (*cf* paleontology).

**neoteny**

**neotenia**

Attainment of sexual maturity in an immature or larval stage.

**neotype**

**neotipo**

Taxonomy: A specimen selected as type subsequent to the original description in cases where the original type(s) (holotype, syntype(s)) are known to have been destroyed.

**nepheloid layer**

**capa nefeloide**

A turbid layer of ocean water, usually at or near the bottom of the deep ocean, carrying very fine suspended particulate matter.

**neritic**

**nerítico**

The coastal zone of the ocean, extending from the shoreline, over the continental shelf, to the shelf break (covers 8% of the total ocean floor). Both benthic and pelagic organisms comprise the neritic flora and fauna.

**neritopelagic**

**nerítico-pelágico**

Inhabiting the shallow coastal water column over the continental shelf.

**net plankton**

**plancton de red**

General term for planktonic organisms large enough and strong enough to be retained by a net of given mesh size.

**net primary production**

**producción primaria neta**

See primary productivity.

**neuston**

Pelagic organisms in the uppermost surface or near-surface layer of the sea; "euneuston" - organisms with maximum abundance at the surface day and night; "facultative neuston" - concentrate at the surface only during feeding; "pseudoneuston" - reach the surface layers at least during certain hours, but do not exhibit maximum abundance at the surface.

**neutral estuary**

**estuario neutral**

A semienclosed body of water with salinity neither substantially higher or lower than the adjacent sea, with which it is connected by a restricted opening (*cf* estuary, negative estuary).

**neutralism**

**neutralismo**

Situation in which two species populations coexist with neither population measurably affected by association with the other.

**New World Land Barrier**

**barrera terrestre del Nuevo Mundo**

The present barrier to east-west travel/transport/dispersal of tropical and temperate marine organisms imposed by interposition of the North, Central and South American land masses between the Atlantic and Pacific Oceans.

**niche**

**nicho**

Ecology: The functional position of an organism in a community including its interaction with all physical, chemical and biological parameters of the environment that impact that position.

**niche breadth**

**amplitud del nicho**

Range of resources used by a species in its local situation.

**niche diversification**

**diversificación del nicho**

The hypothesis that diversity grows with time in a community as finer and finer division of resources (niches) allows more "packing" of species into a community. Concomitants are increased species richness ( $qv$ ), increased equitability ( $qv$ ) (lower dominance), and a closer approach to an "equilibrium" ( $qv$ ) view of species composition (*cf* biological accommodation).

**niche overlap**

**superposición de nichos**

Joint use of resources or environmental variables by two species - not necessarily related to competition.

**niche shift**

**cambio del nicho**

Change in resource use patterns by one species when another species (usually a competitor) is added to or removed from a system.

**noctilucent**

**bioluminiscente**

Bioluminescent.

**nocturnal**

**nocturno**

Active at night (*cf* diurnal, crepuscular).

**node**

**nodo**

(1) Systematics: A branching point in a dendrogram (*qv*).

(2) Biogeography: In vicariance biogeography, the location where two "tracks" (*qv*) (which represent the probable paths of ancestral geographic translocation) intersect (*cf* panbiogeography).

**nomen nudum**

Taxonomy: Name that as originally published fails to meet all of the mandatory requirements of ICZN and is thus lacking status in zoological nomenclature.

**nomen oblitum**

Taxonomy: Forgotten name. A name that has not been used in the zoological literature for at least 50 years. Such names, even if available senior synonyms, should not be used without prior ICZN permission.

**nomenclature**

**nomeclatura**

Taxonomy: The system of scientific names applied to taxa or the process of application of these names.

**nomenifer**

Taxonomy: A specimen acting as a name-bearer (*cf* onomatophore).

**nominate**

**nominado**

Taxonomy: Used of a subordinate taxon (subspecies or subgenus) containing the type of the higher taxon and bearing the same name.

**nomograph**

A graph on which temperature and density contours are plotted against salinity for given field data. Used in the depiction of T-S curves (*qv*) and T-S envelopes (*qv*), and for water mass identification and description.

**nonconservative property**

**propiedad no conservativa**

Properties of sea water changed *in situ*, not just at major hydrosphere interfaces, by some nearshore and sedimentary processes but mainly by the activities of living organisms. Such properties include alkalinity, nutrient content, organic content, dissolved oxygen content, pH, and the extinction coefficient, among others (*cf* conservative property).

**nonparametric statistic**

**estadística no paramétrica**

A so-called "distribution-free" statistic (*qv*), one that does not involve assumptions of an underlying normal distribution, homoscedascity (*qv*) of variances among groups, etc., that are prerequisite to use of parametric statistics such as Analysis of Variance (ANOVA).

**normalizing selection**

**selección normalizante**

Stabilizing selection (*qv*).

**Northeast Monsoon**

See NE Monsoon.

**NTSYS (NTSYS-PC)**

NTSYS (mainframes), NTSYS-PC (IBM compatible microcomputers).

A widely used package of programs for phenetic analyses, developed by J. Rohlf, Exeter Publishing Ltd.

**null hypothesis**

**hipótesis nula**

Statistics: The hypothesis that no real difference or association exists between two populations or between observed values and an underlying expected distribution, and that therefore any deviation observed is due to chance alone. Denoted by  $H_0$ .

**numerical response**

**respuesta numérica**

Ecology: A change in the number of predators in a predator population as a result of a change in prey density (*cf* functional response).

**numerical taxonomy**

**taxonomía numérica**

Phylogeny: Also called phenetics. Grouping is based on relationship defined as unweighted overall similarity. As many characters as practicable are utilized as well as a variety of measures of similarity/distance and grouping algorithms.

**nutricline**

**nutriclina**

Zone of rapid change of nutrient concentration with distance (typically with depth).

**nutrient**

**nutriente**

Any chemical compound or element in sufficiently short supply that it limits or potentially limits autotrophic productivity and whose addition to a system (under defined circumstances) will enhance that productivity (*cf* biogeochemical cycle, micronutrients, macronutrients).

**nyctipelagic**

**nictipelágico**

Pertaining to organisms that migrate into surface waters at night.

## O

**obex**

Any barrier separating populations (obices).

**obligate**

**obligado**

Essential; necessary; unable to exist in any other state, mode or relationship (*cf* facultative); *eg* obligate cleaning symbiont.

**occidental**

Western; westerly (*cf* oriental).

**ocean color**

**color del océano**

Division of reflection of visible light from the sea surface into a number of frequency (wave length) bands corresponding to what we perceive as different colors. A number of processes, including biological productivity are closely indexed by color at the sea surface. Detection outside the visible portion of the spectrum, especially in the infrared, may be used in similar fashion.

**oceanic**

**oceánico**

The environment of the open sea beyond the neritic zone, *ie* seaward of the shelf break. Both pelagic and benthic components comprise the oceanic environment, although most commonly used with reference to the pelagic system.

**oceanic common water**

The largest water mass in the world, forming deepwater in the Indian and Pacific Oceans, with mean temperature about 1.5° C and mean salinity about 34.7 ppt.

**oceanic island**

**isla oceánica**

A volcanic island formed independently of and never connected to any continental land mass.

**oceanodromous**

**talasódromo**

Pertaining to organisms that migrate only within the marine environment (*cf* diadromous, potamodromous).

**oceanography**

**oceanografía**

Study of the physics, chemistry, geology and biology of the oceans.

**œcesis**

See ecesis.

**offshore**

**mar adentro**

General term for ocean regions not in close proximity to land (*cf* inshore)

**-oidea**

Suffix; ending of a name of a superfamily in the zoological literature.

**-oideae**

Suffix; ending of a name of a subfamily in the botanical literature.

**oike**

Habitat (*qv*).

**Old World Land Barrier**

**barrera terrestre del Viejo Mundo**

The barrier to free interchange of tropical and subtropical marine organisms between the Atlantic and Indian Oceans caused by the interposition of Africa and southwest Asia.

**oligomictic**

**oligomíctico**

Applied to lakes that are seasonally stable, only rarely (if at all) exhibiting overturn.

True of most tropical lakes with very warm surface waters.

**oligotrophic**

**oligotrófico**

Poor in inorganic nutrients, primary production will be nutrient limited even where other conditions for sustained high levels of productivity are favorable. Often applied to the so-called "blue-water areas" of exceedingly low productivity most strongly characterized by the central portions of the subtropical anticyclones. Also applied to poorly productive lakes which are often (in various combinations) temperate, alpine, cold, deep (*cf* eutrophic, dystrophic).

**omnivorous**

**omnívoro**

Heterotrophic consumption of live plant and animal material (*cf* carnivorous, herbivore, detritovore).

**onomatophore**

**onomatóforo, portador de nombre**

Taxonomy: A nomenclatural type (holotype, syntype, lectotype, neotype, *qv*); a specimen acting as the name bearer (*cf* nomenifer),

**ontogeny**

**ontogenia**

The developmental history of an individual organism from egg (zygote, spore, etc.) to adult.

**ooze**

**fango**

Fine-grained deepsea sediments (siliceous or calcareous) of biological origin (containing greater than 30% of the naming constituent; *cf* diatom ooze, foraminiferan ooze, *Globigerina* ooze, pteropod ooze, radiolarian ooze).

**open net haul**

**lance con red sin apertura-cierre**

A net fished open (lacking or not employing discrete depth sampling capabilities) typically from depth to surface (*cf* discrete depth sampling).

**opportunistic species**

**especie oportunista**

Fugitive species (*qv*).

**-opsida**

Suffix. The ending of the name of a class in the botanical literature.

**optimal**

**óptimo**

Most favorable; pertaining to the levels of environmental factors best suited for growth and reproduction (*cf* pessimal, optimal foraging, optimal yield, etc).

**optimal foraging theory**

**teoría de aprovisionamiento óptimo, teoría de forrajeo óptimo**

Idea that selection favors prey utilization that maximizes net energy gain per unit of predator feeding time and/or effort.

**optimal yield**

**cosecha óptima**

Fisheries: The MSY (*cf* maximum sustained yield) under a given set of environmental conditions.

**ordination**

**ordenamiento**

Numerical methods for arranging individuals or attributes along one or more lines.

Commonly used in ecology to represent distance in multidimensional space in coordinates of 2 or 3 dimensions (2-space or 3-space).

**oriental**

Eastern, easterly (*cf* occidental).

**orogeny**

**orogenia**

The process of mountain formation.

**orthogenesis**

**ortogénesis**

(1) Evolution of phyletic lines following a predetermined rectilinear pathway, the direction not being determined by natural selection (*cf* directional selection, anagenesis).  
(2) The result of directional selection or "orthoselection" where directionality of selective forces is maintained over evolutionary time.

**osmoregulation**

**osmoregulación**

Physiologically, the process whereby marine or freshwater organisms maintain their osmotic balance at an osmotic pressure different than that of the ambient waters (*cf* hyperosmotic, hypoosmotic, isosmotic).

**OTU**

Operational taxonomic unit. Jargon first put forward by the pheneticists in their search for objectivity, but now used almost universally. Each of the taxa of whatever rank (typically species or genera) that form the elements of an attempt at classification.  
*N.B.* it takes at least three OTU's to meaningfully discuss taxonomic relationship, however one chooses to define and estimate relationship.

**outgroup**

Phylogeny: The taxon (taxa) selected for comparison with the study taxon (ingroup) for purposes of developing transformation series hypotheses (basically primitive ==> derived). Use is expressed by the so-called Outgroup Rule: Given two characters (states) that are homologous and found within a single phylogenetic group, the character (state) that is also found in the sister-group (outgroup) is the plesiomorphic state.

**outwelling**

Enrichment of coastal waters by flushing of nutrient materials from coastal estuaries and embayments (*cf* upwelling).

**overdispersion**

**sobredispersión**

A situation where individuals in a population do not occur randomly with respect to one another but exhibit clumping, such that the presence of one is associated with enhanced probability of another nearby (*cf* even, random). In overdispersion samples tend to have either a large number of individuals per sample or none at all (*cf*. Aggregated, dispersion).

**overturñ**

**mezcla**

Thorough (vertical as well as horizontal) water circulation in the sea or in fresh water, often occurring seasonally, and often caused by density differentials induced by seasonally changing temperatures.

**oxygen debt**

**deficiencia de oxígeno**

Physiologically, the result of oxygen being utilized more rapidly (usually through extensive or rapid muscular exertion) than can be replaced by the normal oxygen delivery system. Organisms typically employ various anoxic metabolic mechanisms until the oxygen debt can be repaid.

**oxygen deficit layer**

See oxygen minimum layer.

**oxygen isotope ratio**

**relación entre los isótopos del oxígeno**

The ratio of  $^{18}\text{O}_2$  to  $^{16}\text{O}_2$ , used to estimate temperatures that existed at particular periods in earth history, *eg* from the ratio of these isotopes in fossil marine shells (from the oxygen in the  $\text{CaCO}_3$ ). Enhancement of  $^{18}\text{O}_2$  indicates warmer temperatures.

**oxygen-minimum layer**

**capa de mínimo oxígeno**

A markedly hypoxic, in some areas thick (hundreds of meters vertically), layer of oxygen poor water, typically between 100 and 1000 m below the surface. Oxygen minimum layers are especially pronounced in the eastern tropical Pacific, the northern Indian Ocean, and the eastern tropical Atlantic.

## P, Q

**P/B ratio**

**relación producción/biomasa**

Production / biomass ratio. In mass terms the ratio between net primary production and standing stock (living and dead) of autotroph biomass. Typically P/B values are very high for oceanic communities and very low for terrestrial communities such as forests.

**Pacific Ocean**

**Océano Pacífico**

Largest of the world's oceans ( $179.7 \times 10^6 \text{ km}^2$ ). It is also (on average) the coldest ( $3.36^\circ \text{ C}$ ), deepest (4,028 m) and least saline (34.62 ppt).

**paedogenesis**

**paidogénesis**

Heterochrony (*qv*) that results in reproduction by forms that have larval or other immature characteristics.

**paedomorphosis**

**paidomorfosis**

Evolutionary change that results in retention of juvenile characters in adults.

**paleocirculation**

**paleocirculación**

Pre-existent patterns of oceanic circulation detected by sedimentary, isotopic and fossil analyses, amongst other clues.

**paleontology**

**paleontología**

Science dealing with the life of past geological periods, in time preceding Recent (*cf* neontology).

**palingenetic**

**palingenético**

Ancestral; of remote or ancient origin.

**paludal**

**palustre**

Pertaining to marshes (*cf* helic, palustrine).

**palustrine**

**palustre**

Pertaining to wet or marshy habitats. Lentic habitats substantially filled with aquatic vegetation.

**panbiogeography**

**panbiogeografía**

Term coined by L. Croizat to describe a new synthesis of plant and animal biogeography.

Central features include the recognition of "tracks" (= generalized tracks (*qv*)) and "nodes" (where different tracks intersect). These and other of Croizat's ideas formed the basis for vicariance biogeography (*qv*).

**panchestrón**

An explanation of such ambiguity that it can be taken to explain almost anything.

**pandemic**

**pandémico**

Very widely distributed; ubiquitous; cosmopolitan.

**Pangea**

A single supercontinent which came into being in late Permian times and persisted about 40 million years, until it began to break up at the end of the Triassic Period. Its division resulted in the northern Laurasia (ultimately much of North America, Europe, and Asia) and the southern Gondwanaland (ultimately South America, Africa, south Asia, Australia and Antarctica).

**panmixis**

Random mating of individuals in a population (as opposed to assortative mating where mate preference based on morphological, behavioral or other features is expressed).

**Panthalassa**

**Pantalasia**

The universal ocean surrounding Pangea (*qv*).

**pantropical**

Circumtropical (*qv*).

**paradigm**

**paradigma**

Essentially a large-scale and generalized model providing the current viewpoint from which the real world is perceived and studied. Scientific progress is measured by a succession of reigning paradigms.

**paradox of the plankton**

**paradoja del plancton**

Phrase coined by the limnologist G. E. Hutchison: the observation that recognizable niche axes available to planktonic organisms (especially phytoplankton) appear to be too few to account for existing diversity in light of the competitive exclusion (*qv*) principle.

**parallelism**

**paralelismo**

The independent acquisition of similar character states in related evolutionary lines [(*cf* convergence); parallelism and convergence are continuous on a gradient of degree of "relatedness", a concept almost never rigorously defined] (*cf* homoplasy).

**parameter**

**parámetro**

Statistics: A characteristic of the distribution of a variable or population, such as the mean or variance, usually denoted by Greek letters (*cf* statistic).

**parametric statistic**

**estadística paramétrica**

A body of statistical techniques based on similar assumptions about underlying distributions and properties - normality, homoscedasticity (*qv*) of group variances, etc.

**parapatric speciation**

**especiación parapátrica**

(1) Speciation in which geographical isolation between presumptive daughter species (*qv*) is incomplete. In the sea viewed as a consequence of very large species-range sizes with differing selective pressures, due to ecological differences, resulting in discontinuous variation and disruptive changes in characters.

(2) Speciation that occurs despite minor gene flow between demes (*qv*). Selective pressures are sufficiently strong to prevent homogenization of the immigrant genes by interbreeding.

**parapatry**

**parapatria**

The condition where populations or species in nonoverlapping distributions make contact without interbreeding.

**paraphyletic**

**parafilético**

Phylogeny: (1) An artificial grouping based on symplesiomorphy, ie sharing of primitive character states. (2) Pertaining to a taxon including some but not all descendants of the common ancestor.

**parasite**

**parásito**

An organism, usually markedly smaller in size, that gains benefit from another organism, the host, to the detriment of the host.

**parasitism**

**parasitismo**

Interaction of species populations where one derives benefits to the detriment (even to the death) of the other. Similar to predation except: (1) it is usually slow (by degree); (2) the species benefiting (the parasite) is often much smaller than the host, living on it or in it; and (3) in many cases the parasite may weaken but not kill the host.

**paratype**

**paratipo**

Taxonomy: A specimen or specimens other than the holotype before the author at the time of preparation of the original description of a species and so designated or indicated by the original author. Paratypes have no "name-bearing" status (are not onomatophores (*qv*)) in the ICZN.

**parsimony**

**parsimonia**

The search for the simplest explanation not contradicted by the facts. Parsimony is the holy grail of cladistic methodology, one sometimes feels that cladists think they invented it.

**particle spectrum**

**espectro de partículas**

Distribution of biomass in different size categories determined by the diameter of a sphere equivalent in volume (v) to the original particle multiplied by the number of particles (n).

**patchiness**

**agregación**

The tendency of many organisms, especially plankton to co-occur in dense swarms or clumps or aggregates (*qv*), or nekton, primarily fish, to co-occur in schools or other aggregations.

**pathogen**

**patógeno**

An organism that is the causative agent of a disease. Pathogens are usually microbes (viruses, bacteria, fungi, etc.).

**pathway**

**ruta, camino, vía**

Possible route or path by which organisms were distributed or spread; synonymous with corridor (*qv*) or "track" (*qv*) (*cf* barrier, node).

**patristic distance**

**distancia patrística**

A measure of the amount of genetically determined change that has occurred between any two points of a phylogenetic tree (*cf* cladistic distance, phenetic distance).

**pattern**

**patrón, modelo**

Dispersion (*qv*) or distribution of organisms, materials or phenomena in space and/or time.

**PAUP**

Phylogenetic Analysis Using Parsimony (PAUP). A widely used package of computer programs for phylogenetic analysis, developed by D. Swofford, Illinois Natural History Survey.

**PCA**

See principal components analysis.

**pedonic**

Pertaining to an inhabitant of the bottom community of a freshwater lake.

**pelagic**

**pelágico**

(1) In aquatic systems applied to organisms, materials or processes found in the water column, removed or essentially so, from influence by contact with the bottom or the nearshore.  
(2) In ornithology, applied to seabirds that come to land only to breed.

**pelagic biogeography**

**biogeografía pelágica**

Study of the distribution of pelagic (*qv*) organisms incorporating both historical and ecological approaches to biogeography.

**pelagic clupeoid**

**clupeido pelágico**

A member of the fish families Clupeidae or Engraulidae inhabiting pelagic coastal systems. Certain species are very important in the ecology and fisheries of major eastern boundary current ecosystems. In many important respects pelagic clupeoids exhibit parallels in their ecology with some important mesopelagic fish groups.

**pelagic region**

**región pelágica**

A biogeographically definable subdivision of the global pelagic environment.

**pelagium**

**pelagobios**

A sea-surface community of the open ocean (*cf* neuston).

**pelochthium**

A mud-bank community.

**penetrance**

**penetrancia**

Genetics: The proportion of individuals of a specified genotype who manifest that genotype as phenotype under a defined set of environmental conditions.

**perigean tides**

**mareas de perigeo**

The tides (*qv*) of increasing amplitude occurring at the time when the moon is nearest the earth.

**periodicity**

**periodicidad**

Events exhibiting cyclicity, recurring either regularly (predictably) or irregularly.

**periphyton**

**perifiton**

Organisms attached to or clinging to stems and leaves of plants or other objects projecting above the bottom sediments of freshwater ecosystems.

**perturbation**

**perturbación**

Any disturbance. Physical, chemical or biological in origin, a perturbation produces measurable change in a community. The permanent effects of perturbation on a community, if any, are the subject of equilibrium *vs* nonequilibrium models of community structure.

**pessimal**

**pésimo**

Least favorable; used to refer to values of environmental factors that are close to the tolerance limits of the organism, farthest from the optimal (*qv*).

**pesticide**

**pesticida**

Any material, usually a chemical of human manufacture, that is used against undesirable organisms (generally animals referred to in the vernacular as pests (*qv*)).

**pest**

**plaga**

Any organism, usually an animal, with undesirable characteristics from the human perspective.

**- phagous**

Suffix; meaning feeding on, eating; *eg* ichthyophagous, saprophagous, scatophagous, etc.

**phaoplankton**

**epiplancton superficial**

The surface plankton (*qv*) of the upper photic zone, within the top 30 m of the water column.

**phenetic distance**

**distancia fenética**

A measure of the difference in phenotype between any two points on a phylogenetic tree (*cf* cladistic distance, patristic distance).

**phenetics**

**fenética**

Phylogeny: Estimation of relationship by calculation of an overall, unweighted similarity value; a purely typological (*qv*) approach to determining and expressing "relationship" (*cf* cladistics, evolutionary systematics).

**phenocopy**

**fenocopia**

An environmentally induced phenotypic variant that resembles the effect of a known genetically-based variant, *eg* from gene mutation.

**phenocritical period**

**período fenocrítico**

That phase during development at which the expression of a gene is most easily or visibly affected by externally applied factors.

**phenogram**

**fenograma**

A dendrogram (*qv*) expressing phenetic relationship (unweighted overall similarity) (*cf* cladogram).

**phenology**

**fenología**

The study of the impact of climate on the seasonal occurrence of floral and faunal elements.

**phenon**

**fenón**

A sample or group of phenotypically similar organisms; used in numerical taxonomy to replace the term "taxon".

**phenotype**

**fenotipo**

The totality of expressed characteristics of an individual (whether observed or measured), as a result of interaction between the genotype (*qv*) and the environment (*cf* ecophenotypic).

**phenotypic plasticity**

**plasticidad fenotípica**

The capacity for marked variation in phenotype as a result of environmental influences on expression of the genotype during development.

**philopatry**

**filopatria**

(1) The tendency of an individual to return to or stay in its home area.

(2) The tendency of members of a stock (*qv*) or population to return to the natal breeding/spawning grounds to reproduce as in salmon or Atlantic herring.

**- philous**

Suffix; meaning loving, thriving in; *eg* dendrophilous, helophilous, pelagophilus.

**phoresy**

**foresis**

Method of dispersal in which an animal clings to the body of a much larger animal of another species and is carried some distance before releasing its grasp.

**photic zone**

**zona fótica**

Zone in which organisms exhibit behavioral or physiological response to day/night changes in light level. (*cf* euphotic).

**photoperiodism**

**fotoperíodo**

The response of an organism to periodic often rhythmic changes in either the intensity of light, or, more usually, to increasing or decreasing daylength.

**photophore**

**fotóforo**

Luminous organ - a discrete morphological structure which contains all of the necessary chemistry for bioluminescence, normally neuronally controlled - found in a variety of deepsea (and some coastal marine) fishes and other organisms.

**phototrophic**

**fototrófico**

Of or pertaining to organisms that obtain their energy from light reactions; autotrophs (*qv*) (*cf* chemotrophs, heterotrophs).

**phototropic**

**fototrópico**

Tropic response (directional orientation and/or movement) of an organism to the stimulus of light; also termed heliotropic (*qv*) in more direct reference to the sun.

**phreatic**

**freático**

Pertaining to ground water.

**- phyceae**

Suffix; the ending of a name of a class in botanical nomenclature.

**- phycidae**

Suffix; the ending of the name of a subclass in botanical nomenclature.

**phycocoenology**

**ficocenología**

Study of algal communities.

**phyletic gradualism**

**graduaismo filético**

New species (forms, series, taxa) arise over time through gradual and continuous phyletic transformation, believed to proceed at a slow and constant rate; (*cf* anagenesis).

**phylogenetic tree**

**árbol filogenético**

Dendrogram (*qv*) representing a hypothesis of phylogeny (*qv*).

**phylogeny**

**filogenia**

Evolutionary relationships within and between taxonomic levels, especially the patterns of lines of descent.

**physics**

**física**

Oceanography: Applies to physical oceanography and oceanographers ("physicists"). Essentially the study of the forcing functions (*qv*) helping to explain dynamic processes in the oceanic hydrosphere and the distribution of oceanic physical properties (temperature, light, pressure, flow fields, etc).

**physiognomy**

**fisionomía**

(1) Ecology: The form and structure of natural communities.

(2) Systematics: The body form and appearance of individual organisms.

**physiological ecology**

**ecología fisiológica, ecofisiología**

The study of the functioning of organisms in relationship to their environment.

**phytobenthos**

**fitobentos**

Autotrophic benthic organisms.

**phytogeography**

**fitogeografía**

The biogeography of autotrophs, especially plants. This branch of biogeography is also known as floristics.

**phytoplankton**

**fitoplancton**

Autotrophic (cyanobacteria, protists, plants) plankton (*qv*).

**phytosociology**

**fitosociología**

Description of plant communities, especially their classification based on floristic rather than life form or other physiognomic criteria.

**phytotelmic**

**fitotélmico**

Used of organisms that inhabit small pools of water within or upon plants (phytotelmata).

**picoplankton**

**picoplancton**

Plankton (*qv*) with maximum dimensions on the order of 0.2 - 2.0 microns

**pioneer**

**pionero**

Ecology: The first species or assemblage to colonize or recolonize a barren or disturbed area, thereby commencing a new ecological succession.

**plagio -**

Prefix meaning oblique, as in plagiotropism, an orientation response at an oblique angle to the vertical.

**planetic**

Motile; possessing motile or swarming stages.

**plankter**

**plancter**

An individual planktonic organism; phytoplankter; zooplankter.

**plankton**

**plancton**

Pelagic organisms incapable of maintaining their distribution against the movement of water masses (*cf.* nekton). Commonly viewed as passive drifters although many are capable of considerable vertical migration.

**plasticity**

**plasticidad**

The capacity of an organism to vary morphologically, physiologically or behaviorally in response to environmental fluctuations.

**plate tectonics**

**tectónica de placas**

Unifying concept encompassing continental drift (*qv*), seafloor spreading, and other major dynamic geophysical process including volcanism and seismic events. The concept is one of a lithosphere of rigid plates of crust and upper mantle material "riding" upon a deformable asthenosphere. The driving force is presumed to be heat derived through decay of radioactive elements within the earth.

**pleio -**

Prefix meaning more.

**pleiotropy**

**pleitropía**

The phenomenon of a single gene being responsible for a number of different phenotypic effects.

**plenary power**

Taxonomy: The authority of the ICZN to suspend the provisions of the Code.

**plesiomorphous**

**plesiomórfico**

Phylogeny: Primitive (ancestral) state of a character (as opposed to apomorphous (*qv*) or derived) (*cf.* derivative).

**pleuston**

Organisms permanently found at the sea surface, limited to the surface by their own buoyancy, often or typically extending into the air, and subject to wind drift (*eg Sargassum, Physalia, Velella*).

**pluvial**

(1) Pertaining to or resulting from the action of rain or precipitation.

(2) Used of a geological period or of a climate characterized by abundant rainfall.

**POC**

**COP**

Particulate organic carbon. Nonliving detrital suspended material in seawater, part of the seston (*qv*), which also includes living particulate matter (*cf.* DOC).

**poikilo -**

Prefix meaning various, variable.

**poikilosmotic**

**poiquilosmótico**

Refers to organisms that do not exhibit regulation of internal salt/fluid content relative to the external milieu over the range of conditions specified; osmotic conformers.

**poikilotherm (ectotherm)**

**poiquilotérmico**

Organism that regulates body temperature by behavioral means only, if at all. In the vernacular termed "cold-blooded" (*cf.* homiotherm).

**polar**

polarOceanic zone, at high latitudes, where sea surface temperatures exhibit an annual excursion from below 0°C to about 5° C.

**poly -**

Prefix meaning many.

**polygamy**

**poligamia**

In animals a pattern of mating in which an individual has more than one sexual partner (includes polyandry and polygyny).

**polygenic character**

**caracter poligénico**

Quantitatively variable character (as expressed phenotypically) which is the result of interaction of a number of genes.

**polyhaline**

**polihalino**

(1) euryhaline (*qv*).

(2) The second most saline zone of an estuary based on the Venice System (*qv*) of classification of brackish waters.

**polymictic**

**polimíctico**

Applied to lakes where waters are circulating (overturning) virtually continuously (*eg* in high altitudes in the tropics).

**polymorphism**

**polimorfismo**

The existence of two or more forms (differing in phenotypic expression) that are genetically distinct but contained and maintained within the same interbreeding population.

**polynya**

**polinya**

An expanse of open water in the middle of sea ice, often permanent or semipermanent.

**polyphyletic**

**polifilético**

Phylogeny: An artificial grouping of taxa based on homoplasy (*qv*), convergently acquired apparent synapomorphy (*qv*), but not true synapomorphy.

**polyploidy**

**poliploidía**

Genetics: A condition in which the number of chromosome sets in the nucleus is a multiple (greater than 2) of the haploid numbers.

**polythetic**

**polítetico**

A taxon of whatever rank that is not uniquely diagnosed by one or more autapomorphic (*qv*) character states but is defined by a combination of character states, a large proportion of which occur in most of the members but no single feature is uniquely possessed by all of the members.

**polytopic**

**politópico**

Occurring in many localities or geographic areas (*cf* monotypic, syntopic).

**polytypic species**

**especie politípica**

Divided into subspecies or genetically distinct populations, varying geographically (*cf* monotypic species).

**polytypy**

**politipia**

The occurrence of phenotypic variation (*cf* phenotype) between populations or subgroups within a species that are geographically distinct. The main problem in studying the variation between such groups is distinguishing between ecophenotypic (*qv*) vs underlying genetic difference.

**pontic**

**póntico**

Pertaining to the deep sea.

**pool**

**existencia**

Ecology: The total or partial quantity of a component, compound, material, etc. (*cf* active pool, reservoir pool).

**population**

**población**

An infraspecific subdivision: an assemblage of organisms regarded as members of the same species, differing from other such assemblages, if any, in relatively panmictic gene exchange and in local differentiation. Unrigorously defined in most cases, the concept of population lies on the continuum between deme (panmictic) and species (reproductively isolated from other species) (*cf* stock).

**population biology**

**biología poblacional**

The intersect of population ecology (*qv*) and population genetics (*qv*).

**population ecology**

**ecología poblacional**

The study of populations (*qv*) in an environmental context, ie the study of physical and biological environmental parameters and their effects on the growth, age-structure and reproduction of populations.

**population genetics**

**genética poblacional**

The study of gene frequencies and selection pressures in populations.

**population structure**

**estructura poblacional**

The age and sex composition of a population, principally products of survivorship ( $I_X$ ) and age-specific fecundity ( $m_X$ ).

**positive estuary**

**estuario positivo**

A "normal" estuary (*qv*) whose waters are of lower salinity than the adjacent sea (*cf* negative estuary, neutral estuary).

**post -**

Ecology: The total or partial quantity of a component, compound, material, etc. (*cf* active pool, reservoir pool).

Prefix meaning after, behind, succeeding, later than.

**potamodromous**

**potamódromo**

Reproductively migrating from a lake or lentic body of freshwater into a tributary stream or lotic body of freshwater, *eg* sea lamprey stocks in the North American Great Lakes.

**potamoplankton**

**potamoplancton**

Planktonic organisms of slow-moving rivers and streams.

**potamous**

**potámico**

Pertaining to the lower reaches of rivers and streams

**potential niche**

**nicho potencial**

See fundamental niche.

**pre -**

Ecology: The total or partial quantity of a component, compound, material, etc. (*cf* active pool, reservoir pool).

Prefix meaning before, in front of, prior to, earlier than.

**preadaptation**

**preadaptación**

Adaptation (*qv*) evolved in one adaptive zone (*qv*) (habitat, environment) which proves fortuitously advantageous in a different adaptive zone, allowing the organism to radiate into it. No selection for the alternate adaptive zone is implied.

**precedence**

**precedencia**

Taxonomy: The order of seniority of available names or nomenclatural acts.

**precocial**

**precoz**

Used of offspring or species that develop rapidly in obtaining independent self-maintenance (*cf* altricial).

**predation**

**predación**

Interaction between species populations in which one organism, the predator, obtains energy (as food) by consuming, usually killing, another organism, the prey. Almost always refers to the consumption of one animal by another (*cf* grazing).

**predator**

**pradador**

The consumer in predation (*qv*) coaction (*qv*).

**preferential species**

**especie preferencial**

A species that is present in varying abundance in several communities (*cf* Braun-Blanquet classification), but especially abundant in one particular community (*cf* accidental, exclusive, indifferent, or selective species).

**prey**

**presa**

The consumed in predation (*qv*) coaction (*qv*).

**primary production**

**producción primaria**

The autotrophic fixation of carbon dioxide by photosynthesis, expressed as a rate per unit volume or per unitary area of sea surface per unit time. (typical oceanic units: mg-C/m<sup>2</sup>/day or g-C/m<sup>2</sup>/year). Gross primary production is rate of carbon fixation per unit volume per unit time. Net primary production is gross primary production minus respiration, and represents the fraction of captured and converted energy available for population growth of the autotroph and for herbivore consumption.

**primary succession**

**sucesión primaria**

Succession initiated on a newly-produced bare area, with no living remnants of a previously-existing community (if any) (*cf* secondary succession).

**primitive**

**primitivo**

Phylogeny: Preserving the character state(s) of an ancestral stage (taxon). The term may be applied to a single character (as a synonym of plesiomorphic) or to the whole organism or to a taxon.

**primordial**

Primitive; original; used of the earliest stage in the ontogeny or development of an organ or system.

**principal component analysis (PCA)**

**análisis de componentes principales (ACP)**

A method of transforming the axes of multidimensional space in which observations occur such that the first axis explains the maximum amount of variance; the second axis (orthogonal to the first) explains the maximum of the remaining variance, and so on. The first 2 or 3 axes explain most of the variance.

**pro -**

Prefix meaning before, in front of, forward.

**probability**

**probabilidad**

Statistics: The chance that a given event will occur. The probability of an impossible event is zero, the probability of an inevitable event is unity (ie  $0 \leq p \leq 1$ ).

**production**

**producción**

See primary productivity, secondary productivity.

**profundal**

**de profundidad**

Pertaining to the deep zone of a lake, below the level of effective light penetration.

**progression rule**

**regla de la progresión**

In cladistic biogeography (*qv*), the idea that, in general, the most plesiomorphous (*qv*) members of a monophyletic lineage will be found in that area at or closest to the area of origin of the group, the most apomorphous (*qv*) will be found in those areas most distant.

**prolific**

**prolífico**

Abundant; able to produce large numbers of offspring.

**promunturium**

A rocky seashore community.

**pros (pro) -**

Prefix denoting the positive condition.

**prospective**

**potencial, posible, probable**

Potential; possible; probable (*cf* realized).

**protandry**

**protandria**

Sequential hermaphroditism in which individuals are initially functional as males and later switch to being functional females.

**protooperation**

**protooperación**

An interaction of species populations (*qv*) in which both populations benefit but neither is dependent on the relationship (*cf* mutualism, amensalism, commensalism).

**protogyny**

**protoginia**

Sequential hermaphroditism in which individuals are initially functional as females and later switch to being functional males.

**provenance**

**origen**

Biogeography: The place of origin.

**province**

**provincia**

See biogeographical province.

**provincialism**

**provincialismo**

See endemism.

**psamathium**

A strandline community of a sandy seashore.

**psammon**

The microscopic flora and fauna of interstitial species between sand grains.

**pseudo -**

Prefix meaning false.

**pseudo-oceanic**

**pseudo-oceánico**

Species that are members of otherwise pelagic and oceanic groups that are obligatory or facultative in their strong association with bottom communities. Commonly associated with continental slopes or island margins.

**pseudopelagic**

**pseudopelágico**

Synonym of pseudo-oceanic (*qv*).

**pseudoplankton**

**pseudoplancton**

Organisms not normally planktonic occurring accidentally in the pelagic realm (*cf* tychopelagic).

**pseudovicars**

**pseudovicariantes**

"Ecologically equivalent species" (*qv*); Unrelated or distantly related but ecologically equivalent species occupying separate and disjunct geographic areas.

**pteropod ooze**

**fango de pterópodos**

Calcareous deepsea biogenic fine-grain sediment in which at least 30% of the sediment consists of shells / shell fragments of the small planktonic gastropods known as pteropods.

**pulsed forcing**

Forcing functions (*qv*) which cycle off and on (or weaken / intensify) in cyclic or rhythmic progression, *eg* the effects on ocean circulation of seasonally occurring monsoonal wind fields.

**punctuated equilibria**

**equilibrio puntuados**

Evolution of new species (forms, varieties, taxa) concentrated in very rapid events, considered nearly instantaneous in terms of geologic time.

**pycnocline**

**picnoclina**

Zone of rapid change of density per unit distance (usually vertically).

**pyramids**

**pirámide**

So-called Eltonian pyramids (*qv*) depict material/energy flow in a community. Commonly cited transfer rates (producer ==> herbivore ==> carnivore, etc) center on 10%, with the rest expressed as entropy or transferred to the decomposer chain (*cf* inverted pyramid).

**Q-mode**

**modo Q**

Methods for analyzing data in which the observations (N) (records) form the columns and the variables or attributes (n) (fields) form the rows in a table or matrix (*cf* R-technique).

**quadrat**

**cuadrado**

A delimited area for sampling flora or fauna, usually placed randomly, haphazardly or arbitrarily within the study area. A one meter square frame is a typical size. Quadrat may also refer to the physical sampling frame itself.

**quadrature**

**cuadratura**

The time at which the sun and moon are approximately at right angles with respect to the earth, associated with neap tides (*cf* syzygy).

**qualitative**

**qualitativo**

Descriptive, non-numerical.

**quantitative**

**cuantitativo**

Numerical; based on counts, measurements, ratios or other values.

**quantum evolution**

**quantum evolutivo**

A "burst" of evolution (*cf* punctuated equilibria).

**quiescent**

**quiescente**

Being quiet, still, or at rest; inactive.

**Q10**

Ratio of the speed of a reaction at a given temperature to that of the same reaction at a temperature 10° C lower. This ratio is approximately 2.0 for most biological reactions.

## R

**r vs K**

Basic terms of the exponential (*qv*) and (K) logistic (*qv*) models of population growth. In ecology a common oversimplification is an attempt to categorize species as either "r-selected" or "K-selected" (*qv*).

**R-MODE**

**modo R**

Methods for analyzing data in which the observations (N) (records) form the rows and the variables or attributes (n) (fields) form the columns in a table or matrix (*cf* Q-technique). This is the more typical method of data organization.

**r-selection**

**selección r**

Selection for maximizing the intrinsic rate of increase of an organism (r), so that when favorable conditions occur, *eg* dispersal into a newly opened habitat, the species is able to expand its numbers rapidly to colonize the area (*cf* K-selection).

**R-strategist**

**R-estratega**

An r-selected species (*cf* r-selection; C-S-R triangle).

**race**

**raza**

Interbreeding group of individuals genetically distinct from the members of other such groups of the same species. Usually these groups are geographically isolated (*cf* allopatry) from one another so that there are barriers to intergroup gene flow.

**radiation**

**radiación**

(1) Ecology: any portion of the electromagnetic spectrum impacting life.  
(2) Evolution: The evolution of many different forms with many different adaptations within a single lineage (*cf* adaptive radiation).

**radiolarian ooze**

**fango de radiolarios**

Siliceous deepsea fine-grain sediment in which at least 30% of the sediment consists of tests of the protists known as radiolarians.

**rafting**

Passive transport of organisms by solid nonliving objects, ranging from rafts of floating, downed vegetation at the sea surface to transport of entire floras and faunas via continental drift.

**random**

**al azar, aleatorio**

A pattern of distribution where individual organisms are sparse in relationship to the total area (volume) and in relationship to the total number of samples, and where every possible sample locality has the same (low) probability of being occupied by the organism. In other words capture or noncapture in one sample is nonpredictive of capture or noncapture in a second sample from the same area. This distribution is well-approximated by a Poisson Distribution (*cf* even, aggregated)

**random assemblage**

**conjunto aleatorio**

The concept that a community (*qv*) of organisms is found together on a random basis (*cf* superorganism concept).

**random numbers**

**números aleatorios**

Statistics: A table of numbers in which the probability of any number occurring at any one time is constant and independent of all preceding numbers.

**range**

**área**

The particular area occupied by an organism or group of organisms or included within its (their) ambit (*qv*).

**rank**

**rango**

A product of ordinal scaling (*cf* scale), the assignment of relative position (first, second, third, fourth,..., last) irrespective of absolute quantitative difference.

**rank-abundance**

**rango de abundancia**

Relative abundance of organisms within a community ordered by rank, with the most abundant species assigned rank=1, the next most rank=2, and so forth. A common measure of community similarity in open ocean studies involves comparisons of rank-abundance.

**rare**

**raro**

(1) Very seldom occurring; typical sampling distribution fits a Poisson.  
(2) Refers to a species known to exist in a community but that is often absent from a series of samples from that community.

**Rassenkreis**

**circulo de razas**

A polytypic species, especially when the populations are naturally arranged in a zonal or meridional trend line, reflecting gene exchange and/or barriers thereto.

**realized**

**realizado**

Actual or observed (*cf* prospective).

**realized niche**

**nicho realizado, nicho efectivo**

Ecology: The actual constraints under which an organism operates - negative coaction such as competition or predation, suboptimal physical environmental conditions, etc. - ensure that the niche (*qv*) in which the organism operates in the real world has less breadth (*qv*) than that in which it could operate if the only limits were its own physiological tolerances and intraspecific interactive effects (*cf* fundamental niche).

**realm**

**zona, área**

Major biogeographic region, *eg* Nearctic, Ethiopian (terrestrial); Antarctic, tropical or equatorial (marine). Also used for major ecological regions (*eg* pelagic, oceanic).

**recapitulation**

**recapitulación**

Heterochrony (*qv*) that results in the appearance during ontogeny of development mirroring presumed rectilinear evolutionary change in a lineage.

**recruitment**

**reclutamiento**

Fisheries Biology: First appearance of individuals of a fishable stock in the fishery - younger individuals are not taken due to size or location or both.

**rectilinear**

**rectilíneo**

Used of growth or movement that follows a straight line trajectory, also orthogenesis (*qv*).

**recurrent group**

**grupo recurrente**

A group of species that consistently co-occurs in samples from an environment, area or community. Consistency of co-occurrence is determined by pairwise calculation of similarity indices using presence/absence data from field samples.

**red clay**

**fango rojo**

A pelagic (oceanic) sediment containing less than 30% material of biogenic origin (*cf* ooze); extremely fine clay mineral particles, accumulating very slowly, typically underlying the most oligotrophic areas of the subtropical anticyclones, covering about 38% of the deep ocean floor.

**red tide**

**marea roja**

A marked bloom of aquatic plants, protists or prokaryotes; typified by dinoflagellate blooms discoloring the water a reddish brown coloration, often with concomitant production of toxins and bioluminescence phenomena. (*cf* milky seas)

**reducers**

**reducidores**

Ecology: Organisms, principally bacteria, that gain nutrition chemolithotrophically in anoxic environments using principally nitrate or sulfate ions as electron receptors, thereby reducing those compounds (*eg* denitrifying bacteria , sulfate-reducing bacteria).

**refugium**

**refugio**

Small isolated area where extensive changes in environmental conditions, most typically changes in climate, have not occurred. Plants and animals formerly widespread in the region now find a refuge from the new and unfavorable conditions in such an unaltered location. Alternatively an area or environment in which a species otherwise displaced by competitive exclusion survives.

**region**

**región**

See biogeographical region or realm.

**regression**

**regresión**

Paleontology/ historical geology: the withdrawal of the sea from a land area (*cf* transgression).

**relationship (phylogenetic)**

**relación (filogenética)**

(1) Evolutionary systematics: the relative closeness of two taxa in an evolutionary sense.  
(2) Cladistics: two taxa are each others closest relative (sister taxa) if and only if each shares with the other a more recent common ancestor than does either with any other taxon.

**relictual distribution**

**distribución relictual**

Applied to the distribution of organisms or taxa, perhaps formerly widespread, now surviving in a fraction of their former range or in an environment generally more specialized or less favorable than previously occupied.

**remote sensing**

**monitoreo remoto**

Use of aircraft, spacecraft, satellites, and other platforms to detect from afar electromagnetic cues (typically involving sensing of light, heat, uv emissions or reflections) concerning environmental conditions at the sea or land surface.

**reproductive potential**

**potencial reproductivo**

Population biology: the expected average per capita production of offspring per female.

**reservoir pool**

**fondo de reserva**

In the biogeochemical cycle, that portion of the nutrient or active substance that is not actively in exchange but may be available to the organisms involved (*cf* active pool).

**residence time**

**tiempo de residencia**

A measure of the chemical or biological reactivity of a substance in seawater and its rate of removal (typically to the sediments). Residence time is the ratio of the input/output flux of the material (assumed to be in equilibrium) to the total amount.

**resilience**

**resiliencia**

Ecology: A stability metric, the rate at which a community or ecosystem returns to an original state following a perturbation (*cf* fragility).

**resource partitioning**

**partición de recursos**

Subdivision of a resource between or among coexisting organisms, often assumed to be related to or the result of competition.

**reticulate evolution**

**evolución reticulada**

Creation of a network of closely related taxa within and at the species level, particularly by chromosome doubling or by polyploidy.

**reverse vertical migration**

**migración vertical inversa**

Diel vertical migration (*qv*) in which the shallowest depths are occupied during hours of daylight, the deepest depths are occupied during hours of darkness, best exemplified by dinoflagellates.

**rheo -**

Evolution of new species (forms, varieties, taxa) concentrated in very rapid events, considered nearly instantaneous in terms of geologic time.

Prefix meaning current, flowing.

**rheology**

**reología**

That aspect of limnology devoted to the study of lotic (*qv*) systems.

**rheotaxis**

**reotaxis**

Change in orientation or direction of movement associated with the stimulus of a current, usually a current of water.

**rhithrous (rhithron)**

**ritron**

Pertaining to the upper reaches of a stream or river.

**rhoium**

A creek community.

**rhyacium**

**comunidad de torrente**

A torrent community.

**ribbon distribution**

**distribución en banda**

In the sea a distribution in which the variance of two of the three possible Cartesian coordinates (latitude, longitude, depth) is much restricted compared to the third, *eg* the upper slope benthic and pseudoceanic (*qv*) groups of species, with relatively narrow bathymetric (and therefore usually narrow inshore to offshore) limits. Usual sense is bathymetric restriction.

**riparian**

**ripario**

Pertaining to, living or situated on, the banks of rivers and streams.

**rhithron**

**ritron**

Of or pertaining to the organisms that inhabit a fluvial (*qv*) habitat.

**riverine**

**fluvial**

Pertaining to a river; formed by the action of a river.

**rooted tree**

Cladistics: usually involves a numerical method of determining the most parsimonious tree (branching sequence) based on evidence of (or assumptions about) character state polarity (ancestral ==> derived).

**rough fish**

Fisheries biology: vernacular term for a species of finfish (*qv*) of little or no commercial value.

**ruderal species**

See R-strategist.

**rule of deviation**

**regla de la desviación**

Cladistics: An essential tenant in cladistic methodology as espoused by Hennig and Brundin: in dichotomous splitting (cladogenesis) one daughter species will be relatively plesiomorphous (*qv*), the other relatively apomorphous (*qv*).

**S-strategist**

**estratega S**

Within the C-S-R triangle (*qv*) a species with small body size, slow growth, long to very long life span, low dispersal capability, strong physiological tolerance to environmental stress, devoting a small proportion of its metabolic energy to the production of offspring - a stress tolerant species.

**salinity**

**salinidad**

A measure of the total concentration of dissolved salts in sea water. More precisely the total amount of dissolved solids in parts per thousand (ppt) by weight when all the bromide and iodide has been converted to chloride, all the carbonate to oxide, and all organic matter completely oxidized (*cf* chlorinity). SI units for salinity: kg/m<sup>3</sup>.

**salsuginous**

Pertaining to or living in coastal habitats episodically inundated by salt or brackish water.

**salt lake**

**lago salado, lago hipersalino**

An inland water body having a high salinity due to loss through evaporation, not drainage.

**salt marsh**

**marjal salino, marisma salina, ciénaga salina**

A flat poorly drained coastal swamp typically inundated by high tides.

**saltation**

**saltación (evolución saltatoria)**

- (1) Evolution: A drastic and sudden mutational change; an abrupt evolutionary change; macrogenesis.
- (2) Behavior: To move by leaping or bounding.
- (3) Geology: The bouncing movement of sand grains advected by winds.

**sapro -**

Prefix meaning rotten, decaying.

**sapropel**

**sapropel**

Term applied to organisms inhabiting muds rich in decaying organic matter (sapropelic).

**saproplankton**

**saproplancton**

Saprophagous plankton, feeding on nonliving particulate materials in the water column (*eg Noctiluca*).

**saturation**

**saturación**

(1) Ecology: No more room, full utilization of available resources. Based on the notion that in any closed system in equilibrium all of the net energy produced is utilized by consumers and decomposers for there to be a balanced energy budget. Seen as true for individual species as well as the whole assemblage. But almost no system is truly closed which begs the question of how species K or community "K" might be determined. In fact populations and communities probably seldom reach equilibrium although in very K-selected species in K-selective environments (highly stable and/or predictable), it may be approached.

(2) Meteorology: A condition in which air at a specific temperature contains all the water vapor it can hold; 100 percent relative humidity.

(3) Physics: Vividness of hue of color; degree of difference from a gray of the same lightness or brightness. Also called intensity.

**scale**

**escala**

The system of measurement and expression of a variable. Scale systems commonly employed in biology include: (1) ratio scale (true zero, *eg* length, mass, time); (2) interval scale (constant interval, no true zero; *eg* Celsius or Fahrenheit temperature scales); (3) ordinal scale (ranked values; relative not absolute quantitative difference); (4) nominal scale (coded; qualitative; *eg* male *vs* female, red *vs* blue, etc.)

**scattering layer**

**capa difusora**

An acoustically dense or opaque layer of organisms in the pelagic water column detected by back-reflection of a transmitted acoustic impulse (*cf* deep scattering layer).

**scavenger**

**detritívoro**

An animal that feeds on dead or decaying matter.

**school**

**cardúmen**

An aggregation of marine or freshwater organisms, usually nektonic fish, exhibiting coordinated (and related) movements.

**sea bird**

**ave marina**

Birds which spend most of their lives at sea, deriving virtually all of their food resources from the marine environment; possessing salt glands allowing drinking of sea water and processing of ion-rich food. True sea birds are limited to four avian orders: Sphenisciformes, Procellariiformes, Pelecaniformes, and Charadriiformes (true sea birds are much in the minority in the latter order).

**secondary production**

**producción secundaria**

The production (*cf* primary production) of herbivores, or of herbivores and carnivores, in a community food web.

**secondary succession**

**sucesión secundaria**

Succession initiated by the disruption of a previously existing seral or climax community by a major perturbation, leading to marked change in community structure, usually initially expressed as greatly reduced diversity (*cf* primary succession).

**seiche**

**seca**

A standing wave oscillation of an enclosed or partially enclosed water body that continues after the cessation of the original generating force (*eg* wind or other meteorological condition).

**selection**

**selección**

Evolution: Differential survival of genotypes. Process that determines through action upon and through differential fitness (*qv*) the relative proportion of different genotypes within a population (*cf* stabilizing selection).

**selective species**

**especie selectiva**

A species found most frequently in a particular community (*cf* Braun-Blanquet classification), but also present occasionally in other communities (*cf* accidental, exclusive, indifferent, or preferential species).

**selfing**

**autofecundación**

Self-fertilizing or self-pollinating; usually used in reference to flowering plants.

**semelparity**

**semelparidad**

Organism which breeds but once during its reproductive lifetime (*cf* iteroparity).

**semestrial**

**semianual, hemianual**

Pertaining to periods of six months; half-yearly.

**semi -**

Prefix meaning half or partly.

**semi-enclosed system**

**sistema semi-cerrado**

A system with restricted but still open access to a usually much larger outside system or reservoir, *eg* an estuary (*qv*) as classically defined.

**semidiurnal tide**

**marea semi-diurna**

A tidal cycle exhibiting two high water and two low water periods each lunar day.

**semispecies**

**semi-especie**

Group of organisms that are taxonomically or functionally intermediate between a race (*qv*) and a species (*qv*).

**senescence**

**senescencia**

The complex deteriorative processes that terminate naturally the functional life of an organ or organism; aging.

**sensitive organisms**

**organismos sensitivo**

Organisms whose biology, physiology, behavior, etc., are markedly changed by relatively minor environmental changes. [Obviously a highly subjective term.]

**sensu**

Latin, ablative, meaning "in the sense of." Used in expressions such as *sensu lato* (*qv*) as well as in phrases such as *sensu* Van der Spoel 1982, meaning in the sense used or meant by Van der Spoel in the 1982 work referenced.

***sensu lato* (s. l.)**

Taxonomy: In the broad or wide sense, when speaking of a taxon meaning in the broadest possible interpretation (usually of the contained OTU's of that taxon).

***sensu stricto* (s. s.)**

Taxonomy: In the strict sense, the narrowest or most rigid interpretation of a taxon (usually in terms of its contents, *cf sensu lato*).

**seral stage**

**estado seral**

Phase in the sequential development of a climax community (*cf* succession).

**sere**

- (1) Developmental biology: Characteristic sequence of developmental stages occurring in succession.
- (2) Ecology: Of a habitat, severe, usually tolerable only to a few highly-adapted organisms (eg extreme desert, bare rock, arctic-alpine).

**series**

**serie**

Taxonomy: The sample (usually of a given taxon) which the collector takes in the field or the sample of the taxon available for taxonomic study.

**serotinal**

**estival tardío**

Pertaining to late summer.

**sessile**

**sésil**

Applied to an organism fixed in position, attached, unfree to move about (*cf* vagile).

**seston**

The total weight of all particulate materials in sea water, both living and non living, that can be collected on a filter of specified pore size (eg 0.45mm).

**shelf break**

**borde de plataforma**

The outer edge of the continental shelf; the zone of interface between the continental shelf and the continental slope.

**shellfish**

**mariscos**

See finfish *vs* shellfish.

**sial**

The granitic lighter layer of crust, associated with continents, containing relatively high concentrations of silica and aluminum, (*cf* sima).

**sibling species**

**especie gemela**

Pairs or groups of closely related species which are reproductively isolated but morphologically identical or nearly so (synonym: "cryptic species")

**sidereal day**

**día sidéreo**

The mean time taken for one rotation of the Earth; each year comprises 365.256 sidereal days.

**signal**

**señal**

Oceanography: Widely-used jargon, meaning an environmental (physical, chemical, biological) cue or forcing function (*qv*) eliciting an observed response.

**sill depth**

**profundidad umbral**

Water depth of the deepest channel connecting an oceanic basin to another or to the global ocean beyond.

**sima**

The layer of the earth's crust lying below the sial, denser, associated with the deep ocean floor, composed of basaltic rocks rich in silica and magnesium (*cf* sial).

**sink**

**reservorio, depósito**

A buffering reservoir; any large reservoir that is capable of absorbing or receiving energy or matter without undergoing significant change.

**sister group**

**grupo hermano**

Cladistics: Two OTU's that are hypothesized to be the immediate product of cladogenesis.

A sister group is therefore the OTU (*qv*) sharing a more recent common ancestor with the OTU of reference than does either OTU share with any other taxon. Cladistics is for the most part the search for sister groups. Cladistical procedure requires that such groups be assigned the same (coordinate) rank.

**skewness**

**asimetría**

Statistics: One measure of departure of a frequency distribution from a normal distribution, involving an asymmetric distribution of values around the mean (*cf* kurtosis).

**slack water**

**estoa**

An interval of low velocity tidal current, usually the period of reversal between ebb and flow.

**slick**

An aggregation of floating matter resulting in reduced wave activity and a smooth and shiny water surface.

**slime**

**moco, sustancia mucosa**

(1) A thick, sticky, slippery substance.

(2) A mucous substance secreted by certain organisms (*eg* various bacteria produce extracellular mucopolysaccharides).

**Slope Water**

**agua de talud**

Discrete water mass region off eastern North America, a transition zone (*qv*) bound by the 15° C isotherm contour at the 200 m surface and the edge of the continental shelf.

**smooth cline**

**cline gradual**

A monotonic relationship between two variables. Biological clines typically express infraspecific variation where the variables are usually phenotypic expression *vs* distance or environmental variable. In a smooth cline there are no evident sharp discontinuities as in a stepped cline. Discontinuities suggest sharper barriers to gene interchange or a discontinuity (*eg* a front) in the environment.

**social facilitation**

**facilitación social**

The requirement for a minimum number of conspecifics to be present to elicit a certain behavior, usually reproductive behavior, (*eg* breeding in the North American passenger pigeon).

**solar day**

**día solar**

The mean time interval between consecutive sunrises or any other given position of the sun (*eg* zenith); nominally 24 hrs (*cf* sidereal day).

**source-sink model**

**modelo fuente-sumidero**

The hypothesis that species diversity, especially in the tropics, builds up when restricted localities favorable to certain species allow them to produce a surplus of emigrants, hence to be a source of new individuals dispersing to less favorable sites nearby, the sinks (*qv*).

**Southern Ocean (Antarctic Ocean)**

Used to describe oceanic waters surrounding Antarctica, extending to about 40° S, the northern limit of drift ice, or to the southern Subtropical Convergence (*qv*).

**Southwest Monsoon**

**monsón sudoeste**

The monsoon (*qv*) in the north Indian Ocean that blows from southwest to northeast during the summer months of May through August (*cf* NE Monsoon).

**spawn**

**desove, desovar**

- (1) The eggs of aquatic animals such as bivalve mollusks, fishes, and amphibians.
- (2) To deposit or release eggs.

**sp. nov.**

**nueva especie**

An abbreviation of the Latin *species nova*.

**specialist**

**especialista**

Ecology: A species having a narrow or restricted habitat range or food preference (*cf* generalist).

**specialization**

**especialización**

Degree of adaptation of an organism to its environment. A high degree of specialization normally suggests a narrow niche breadth (*qv*) or narrowness of habitat.

**speciation**

**especiación**

The splitting of a phyletic line; the process of the multiplication of species; the origin of discontinuities between populations caused by the development of reproductive isolating mechanisms. As used the term normally implies cladogenetic change (*cf* anagenesis, cladogenesis).

**species**

**especie**

Groups of natural populations which potentially or actually interbreed (reproduce) but which do not reproduce with other such groups, from which they usually differ in consistent (even if slight) morphological or meristic characteristics.

**species assemblage**

**conjunto de especie**

See assemblage.

**species equilibrium**

**equilibrio entre especies**

In island biogeography, the steady state number of species as a measure of biodiversity found on an island or isolated patch of habitat due to a balance between the immigration of new species and the extinction of old residents.

**species flock**

A group of several ecologically diverse and closely related species that have evolved within a single macrohabitat, such as a particular lake basin.

**species richness**

**riqueza específica**

A component of diversity - the length of the species list, ie the number of species actually present in an assemblage or community (*cf* diversity index, equitability).

**species-area curve**

**curva de especies-área**

An empirically derived relationship between the number of species (usually limited to a single large taxon, *eg* "birds" or "herpetofauna") and the area occupied. Often applied to islands. Similar considerations have been used in comparing sample size (*eg* volume water filtered) with species richness - on average a larger to much larger sample size is required to observe very rare species.

**spontaneous generation**

**generación espontánea**

The long discredited theory that living organisms can arise spontaneously from an appropriate mix of nonliving chemicals in aqueous solution.

**sporadic**

**esporádico**

Scattered; occasional.

**sport fish**

**peces deportivos**

Fisheries biology: In the vernacular, a finfish (*qv*) species commonly sought by recreational anglers.

**spring tide**

**marea de sicigia**

The exceptionally high and low tides that occur at the time of the new moon or the full moon when the sun, moon, and earth are approximately aligned (in syzygy, *qv*), on average about 20% higher than normal (mean) tides.

**stability**

**estabilidad**

(1) Ecology: Of a community - resilience (*qv*) to perturbation (*qv*), tendency to recover after perturbation.

(2) Oceanography: Expression of energy required for vertical movement of water parcels; defined as the rate of change of density with depth. Stability is typically maximum at the main thermocline.

**stabilizing selection**

**selección estabilizante**

Selection for the mean or intermediate phenotype with consequent elimination of peripheral variants or extreme phenotypes [expression of extreme (unusual, maladaptive) genotypes]. Maintaining an existing state of adaptation in a stable environment. Also known as normalizing selection (*cf* disruptive selection, directional selection).

**stagnicolous**

Living in stagnant water.

**standing crop**

**existencia, cosecha**

In whatever units (cells/liter; chl-A concentration, shoots per m<sup>-2</sup> ), a measure of the biomass actually present at a stated point in time for a stated area or volume. (equivalent to standing stock).

**standing stock**

**existencia**

The number, biomass or concentration of a given organism actually present at the time of reference. Commonly used in describing assemblages of autotrophic organisms and zooplankton (also called standing crop, see P/B ratio).

**stasipatric speciation**

**especiación estasipátrica**

See parapatric speciation.

**statics**

**estática**

Description of objects in place in instantaneous time without measurement of the forces or phenomena that caused them to be there or help to understand where they will be in the future (*cf* dynamics). Much of open ocean biogeography has been descriptive and static in nature, in part because of lack of sufficient time series (*qv*).

**station**

**estación**

The site at which an observation or collection was made.

**statistic**

**estadística**

Any function of a sample drawn from a larger population or universe; often used as an estimate of the corresponding parameter (*qv*) of the population from which the sample was drawn; commonly denoted by Roman letters.

**steno -**

Prefix meaning narrow.

**stenohaline**

**estenohalino**

Organisms with a narrow range of tolerated salinities.

**stenophagy**

**estenofagia**

Having a very specialized diet.

**stenothermal**

**estenotérmico**

Organisms with a narrow range of tolerated temperatures (*cf* eurythermal).

**stenotopic**

**estenotípico**

An organism with narrow habitat requirements or environmental tolerances (*cf* eurytopic).

**stepped cline**

**cline escalado**

See smooth cline.

**stereotaxis**

**estéreotaxis**

See thigmotaxis.

**stimulus**

**estímulo**

(1) Something causing or regarded as causing a response.

(2) An agent, an action, or a condition that elicits or accelerates a physiological or behavioral activity or response.

**stochastic process**

**proceso estocástico**

Processes that result from the influence of one or more random variables, with the outcome probabilistic (*cf* deterministic processes).

**stock**

**existencias**

Fisheries biology: An identifiable subgroup within a fishable species that may or may not be congruent with the concepts of population (*qv*) or deme (*qv*). Typically the concept of stock implies greater gene flow between stocks than might be true for identifiable populations or especially demes.

**stratification**

**estratificación**

Oceanography: layering of water masses with pycnoclinal interfaces separating the layers.

**stratified net haul**

**lance de red estratificado**

See discrete depth sampling.

**stratigraphy**

**estratigrafía**

Geology: dealing with the study of stratified (layered) rocks in terms of distribution, composition and origin. It also deals with correlation (in the sense of time) of rocks from different localities.

**stratocoenosis**

**estratocenosis**

The community of a particular vegetational or physical habitat layer, *eg* the canopy layer of a forest or the hypolimnion of a stratified lake.

**subantarctic**

**subantártico**

Referring to a pelagic oceanic species occurring in the Southern Ocean West Wind Drift zone between the Subtropical Convergence and the Antarctic Convergence.

**subarctic**

**subártico**

Referring to a pelagic oceanic species occurring in the area of the Pacific Subarctic Water Mass or in the Atlantic north of the northern subtropical convergence.

**sublittoral zone**

**zona sublitoral**

The neritic coastal zone extending from immediately below the littoral (*qv*) to the shelf break.

**submergence**

**submersión**

A tendency for shallow-dwelling coastal cold temperate marine organisms to follow isotherms in any equatorward extension of range, thus occurring at greater depths when closer to the equator. Has been applied, with very limited evidence, to certain pelagic forms.

**submerged**

**submergente**

Pertaining to a plant or plant structure growing entirely under water; submerged.

**subpolar**

Oceanic zone where surface temperatures exhibit an annual excursion between (about) 5 - 15°C.

**subspecies**

**subespecie**

A geographically defined aggregate of local populations which differs taxonomically (is assigned a name) from other such aggregations of populations within a single species. The only infraspecific taxon recognized within the ICZN to be accorded the status of rank and allowed to receive an available name.

**substrate**

**sustrato**

- (1) The material or substance on which an enzyme acts.
- (2) A surface on which an organism grows or is attached [preferred use in this context is substratum (*qv*)].
- (3) An underlying layer; a substratum (*qv*).

**substratum**

**sustrato**

The solid surface on which a benthic organism grows or is attached (*cf* substrate).

**subsurface intrusion**

**intrusión subsuperficial**

A tendency for countercurrent flow at middepth below a boundary current. In the eastern Pacific this results in poleward intrusion (flow) of eastern Pacific equatorial water below the California Current and the Peru Current.

**subtropical**

Oceanic zone where surface temperatures exhibit an annual excursion between (about) 15 to 30° C during the year.

**subtropical anticyclone**

**anticiclón subtropical**

One of the seven major patterns of winddriven current flow in the world ocean - the five subtropical anticyclones (*qv*) are in the North and South Atlantic, South Indian, and North and South Pacific. The two other major patterns are the Monsoon Gyre System of the North Indian Ocean and the West Wind Drift of the Southern Ocean.

**subtropical convergence**

**convergencia subtropical**

Convergence zones in both the northern and southern hemispheres between the principal upper water mass area of the central gyre and the subarctic or subantarctic zone poleward.

**subtropical species**

**especie subtropical**

Pelagic oceanic species occurring in the water mass area of one or more of the central principal upper water masses.

**succession**

**sucesión**

Ecology: sequential change in a community (classically in vegetation) in response to environmental changes such as perturbation, seasonal inducement (such as Spring bloom succession in the phytoplankton), or the maturation of a community (as in climax biome).

**sudd**

A floating mass of plant material.

**summer kill**

**mortalidad masiva estival**

The death, usually of notably large numbers of organisms, usually in lakes and slow-moving streams, due to low oxygen tensions during warm summer conditions. Summer kills typically occur when eutrophic conditions result in super-abundant growth of phytoplankton and micro-organisms that deplete the already low levels of dissolved oxygen.

**super-organism concept**

**concepto de superorganismo**

The idea that biological accommodation and the strong ties of species interaction cause a community to behave in some senses as an organism, with homeostatic properties expressed as a tendency (resilience) to restoration of the pre-existing state following perturbation.

**superspecies**

**superespecie**

An aggregate of allopatric species or semi-species; *formenkreis*.

**suprabenthic**

**suprabentico**

Living above but close to the substratum; hyperbenthic. (*cf* epibenthic, endobenthic).

**supralithion**

Aquatic organisms swimming above a rocky substratum but deriving their food from the surface of that substratum.

**supralittoral zone**

**zona supralitoral**

The seashore zone immediately above the littoral and above the range of tidal submergence

although still affected by sea spray.

**suprapelos**

Aquatic organisms swimming above a soft mud substratum but deriving their food from the surface of that substratum.

**suprapsammon**

Aquatic organisms swimming above a sand substratum but deriving their food from the surface of that substratum.

**surface aquatic plants**

**plantas acuáticas flotantes**

Plants, typically freshwater flowering plants, that float on the surface of the water (*eg* water lilies, water hyacinths).

**surface layer**

**capa superficial**

See mixed layer.

**survey**

**reconocimiento, estudio, investigación**

A sampling effort carried out in systematic fashion, classically with enumeration of flora and fauna and/or other environmental constituents as the major goal.

**survivorship curve**

**curva de supervivencia**

Graphical description of the survival (longevity) of individuals in a population from birth to the maximum age attained by any one member. Usually plotted as the logarithm of the number of survivors as a function of age, such that a constant mortality rate is illustrated.

**suspension feeder**

**consumidor de material en suspensión**

Any organism that feeds on particulate organic matter suspended in water (*cf* deposit feeder).

**sweepstakes route**

Route along which dispersal is unlikely for most groups but does occur for some [*eg* waif (*qv*) dispersal].

**symbiosis**

**simbiosis**

Living together in close proximity of two dissimilar organisms. The relationship is classified according to effect(s) on each member. Includes amensalism (*qv*), commensalism (*qv*), mutualism (*qv*), and parasitism (*qv*), among other categories.

**sympatric speciation**

**especiación simpátrica**

Speciation without geographic isolation; the acquisition of isolating mechanisms within a deme (*cf* allopatric speciation).

**sympatry**

**simpatria**

The occurrence of two or more populations in the same area, ie the existence of a population in breeding condition within the cruising range of individuals in breeding condition of another population (*cf* allopsty).

**symplesiomorphy**

**simplesiomorfía**

The sharing of "ancestral character states" (*qv*) by different but "coordinate taxa" (*qv*).

**synapomorphy**

**sinapomorfía**

The sharing of derived (*cf* derivative) character states by different but "coordinate taxa" (*qv*).

**synchronous species**

**especie sincrónica**

Paleontology: species occurring at the same time level (*cf* allochronic species).

**synchronous hermaphroditism**

**hermafroditismo sincrónico**

Occurrence of functional male and female gonadal tissue at the same time in the same individual, with synchronous maturation of eggs and sperm. Particularly for the deepsea, the possibility of self-fertilization may exist but has not been demonstrated.

**synecology**

**sinecología**

Ecology: The study of whole plant and animal communities including the physical and chemical as well as the biological environment (*cf* autecology).

**synergism**

**sinergismo**

Situation where two factors operate in tandem to produce a result more noteworthy, or more extreme, or more beneficial, or just plain different from the operation of the two factors independently.

**synonym**

**sinónimo**

Taxonomy: each of two or more different names for the same taxon.

**synthesis**

**síntesis**

(1) The act of assembly of parts or constituents to form a whole.

(2) Philosophy: the process of deductive reasoning from first principles to a conclusion.

**syntopic****sinóptico**

Used of populations or species that occupy the same or similar macrohabitats within a given geographic area. (*cf* sympatry). Syntopy sometimes implies closer approximation (within same habitat) than sympatry (within same geographic area).

**syntype****sintipo**

Taxonomy: Every specimen in a type-series in which no holotype (*qv*) was designated by the original author of the name in a species-level taxon.

**systematics****sistemática**

The study of the diversity of organisms, in space and in time (*cf* taxonomy).

**systems ecology****ecología de sistemas**

Ecology: Study of entire systems of interacting populations in a complex and dynamic physical, chemical and biological environmental setting. Often such studies involve construction of complex models (still much simpler than reality) in order to predict responses to inputs.

**syzygy****sicigia**

The time at which the sun and the moon are in line with the earth and each other, either in conjunction or in opposition, associated with spring tides (*cf* quadrature).

**T****T-S curve****curva T-S**

The relationship between temperature and salinity over a specified depth range (the depth of sampling), commonly plotted on a nomograph (*qv*).

**T-S envelope****área T-S**

Plots of T-S curves from samples drawn from the same water mass (throughout its depth and over the area of its occurrence) produce very similar plots forming a water mass envelope. The characteristic signature and identifying feature of a water mass envelope (for the principal subsurface water masses) a restricted zone of origin, typically at high latitude, at or near the surface, in winter.

**tacheion**

Actively moving aquatic organisms comprising both crawling (herpon) and free-swimming (natatory) forms.

**tachytelic****taquitélico**

Rate of evolution within a group that is much faster than the (empirically determined) average or horotelic rate (*qv*), usually occurring during adaptive radiation (*qv*) of a lineage but also may reflect on punctuated equilibria (*qv*) (*cf* bradytelic).

**tang line**

The highest continuous line on the shore along which a particular seaweed grows; applied mostly to kelps including laminarians but to other algal groups as well.

**taphonomy**

**tafonomía**

Study of the environmental processes and phenomena that affect organic remains after death, including fossilization and the assemblage of fossil "communities" (taphocoenoses).

**taxis**

Generalized behavioral reaction to an environmental stimulus (*qv*), such as light, temperature, pressure, gravity, etc.

**taxon**

**taxón**

Population or group of populations sufficiently distinct to be named, be ranked, and establish a geographic distribution.

**taxon cycle**

**ciclo del taxón**

Theory that a species spreads while adapted to one habitat, then becomes more restricted in its range (often splitting into two or more species) while adapting to another habitat. For example in island species widespread low-elevation taxa are commonly the most recent colonists whilst the taxa restricted to montane rain forest are the older taxa on the island.

**taxonomic (Linnean) hierarchy**

**jerarquía taxonómica (linnena)**

A hierarchical system of taxonomic categories arranged in ascending series of ranks:

Botany (12 ranks): Kingdom, Division, Class, Order, Family, Tribe, Genus, Section, Series, Species, Variety, Form. Zoology (7 ranks): Kingdom, Phylum, Class, Order, Family, Genus, Species. Any of a number of additional categories can be introduced subject to peer review and review by the Editor, for example, by prefixing with sub-, supra- or infra-. Cladists like a lot of them.

**taxonomy**

**taxonomía**

The theory and practice of classifying and naming organisms (*cf* systematics).

**tectonics**

**tectónica**

See plate tectonics.

**teleology**

**teleología**

The doctrine that natural phenomena result from or are shaped by design or purpose.

**teleplanic**

**teleplánico**

Meroplanktonic (*qv*) larvae capable of spending long periods of time in the plankton, in many cases capable of very long distance dispersal via advection, and exhibiting special adaptations for a long planktonic life.

**telmatium**

A wet meadow or marsh community.

**terrigenous mud**

**fango terrígeno**

A marine sediment composed of at least 30% silt and sand derived from the land.

**territory**

**territorio**

The local geographic area inhabited, controlled or defended by an animal.

**tertiary production**

**producción terciaria**

The production ( see primary production) of carnivorous animals preying on the herbivore population in the system of reference.

**Tethys Sea**

**mar de Tethys**

The sea that more or less separated the two Mesozoic supercontinents of Laurasia in the north and Gondwana in the south.

**thalassic**

**talásico**

Pertaining to the seas or deep ocean waters.

**thanatocoenosis**

**tanatocenosis**

An assemblage of organisms brought together after death (taphocoenosis, see taphonomy).

**thermal stratification**

**estratificación térmica**

Oceanography: The layering or vertical division of the water column based on temperature differences.

**thermum**

**termobios**

A hot spring community.

**thermocline**

**termoclina**

A zone of rapid change of temperature with distance, usually in the vertical dimension.

**thermohaline circulation**

**circulación termohalina**

Oceanic circulation caused by induction of density differences between water masses; usually such processes result in the cooling (and sometimes, through freezing of sea ice, increasing the salinity) of water at the surface at high latitudes(eg North Atlantic Deep Water, Antarctic Bottom Water) or an increase in salinity (and therefore density) through evaporation (eg Red Sea, Mediterranean Sea outflows).

**thermoregulation**

**termoregulación**

See homiotherm.

**thermotaxis**

**termotaxis**

Orientation or movement induced by a heat stimulus.

**thigmotaxis (stereotaxis)**

**tigmotaxis**

Change in orientation or in direction of locomotion in response to a tactile (touch) stimulus.

**thiobios**

Organisms inhabiting anaerobic sulfur-rich environments.

**threshold**

**umbral**

A minimum quantity or value needed to produce a given effect.

**tidal day**

**día mareal**

The period between two consecutive higher high waters at a given place, averaging 24 hr 51 min.

**tidal flat**

**planicie de marea**

Shallow smooth areas of sea bottom (frequently in estuaries) that are exposed at low tides, usually barren of macroscopic vegetation.

**tidal marsh**

**marisma de marea**

Tidal flats covered with pasture-like vegetation, always dominated by halophytic angiosperms (*eg Spartina, Juncus, Salicornia*).

**tidal zone**

**zona de mareas**

The zone along the shoreline directly affected by the rise and fall of the tides, between the level of the highest high tide and lowest low tide.

**tide**

**marea**

Rise and fall of sea level in response to the gravitational attraction of the moon and sun.

**time series**

**serie de tiempo**

Repetitive sampling and/or observation of a population over a duration of time sufficient to allow meaningful inferences about demographic and life history parameters.

**time-stability hypothesis**

**hipótesis del tiempo-estabilidad**

Hypothesis that diversity in a community will increase if stable conditions persist over time. Concomitant hypothesized consequences include increased specialization, increased diversity, increased equitability, decreased dominance, niche diversification.

**tiphic**

Pertaining to ponds.

**tolerance**

**tolerancia**

Ecology: The ability of an organism to function in suboptimal environmental conditions.

**tolerance polygon**

**polígono de tolerancia**

Graphic representation of upper and lower tolerance limits with respect to any physical or chemical environmental variable (ordinate; *eg* temperature, salinity, etc.) *vs* conditions of acclimation (*qv*) (abscissa).

**topotype**

**topotipo**

Taxonomy: A specimen collected at the type locality; has no official ICZN standing.

**torrenticulous**

**de torrente**

Living in river torrents.

**totipotency**

**totipotente**

In development a measure of the retention of the ability of cells or tissues to differentiate freely into any cell or tissue end-product, typically in response to positional or environmental control. (*cf* differentiation).

**toxicant**

**tóxico**

Any material, usually a chemical compound, capable of inducing death or other incapacitation in an organism.

**toxicity**

**toxicidad**

Of or referring to the death or other debilitating effect produced in an organism by a toxicant (*qv*).

**tracer**

**trazador**

Property or substance used in advection/diffusion method of Lagrangian (*qv*) measurement (*cf* biological tracer, core method).

**track**

Map depicting the range limits of a particular organism, population, species or higher category OTU (*qv*) (*cf* node).

**trade wind**

**viento alisio**

**Meteorology:** Essentially uniform tropical wind blowing towards the equator from the northeast in the northern hemisphere and from the southeast in the southern hemisphere; the at-surface manifestation of the tropical Hadley cell (*cf* convection).

**trait**

**caracter**

Any detectable phenotypic property of an organism; a character or character state.

**transect**

**transecta**

Linear sampling design most commonly used to investigate an environmental gradient (*e.g.* of salinity in a salt marsh). Originally employed in vegetation analysis, now widely used for both plant and animal population and community ecology.

**transformation series**

**serie de transformación**

The sequenced series of homologous character states representing an evolutionary trend in a character (and in a lineage), typically from plesiomorphous (*qv*) to apomorphous (*qv*).

**transgression**

**transgresión**

Paleontology/ historical geology: The spread of the sea over a land area (*cf* regression).

**transition region**

**reión de transición**

Biogeography: An ecotonal zone separating two or more water mass regions (or any other similarly-defined ecosystem-assemblage areas), typically characterized, in the case of water mass transition by an intermediate and variable hydrography and by mixed floras and faunas.

**transition region species**

**especie transicional**

A species endemic to a transition region (*qv*).

**transition zone**

**zona de trancisión**

Oceanography: Areas with mixed water mass properties. Classic examples include boundary current extensions and the boundary between the subtropical gyres and high latitude circulation systems.

**transport**

**transporte**

Volume of water (or air) advected per unit time by a major oceanic (atmospheric) current. In the case of major ocean currents one common unit of transport description is  $10^6 \text{ m}^3 \text{ sec}^{-1}$  (= 1 Sverdrup, Sv).

**Tricellular Model**

**modelo tricelular**

See Hadley Cell.

**tripton**

Non-living particulate matter suspended in water, a component of seston (*qv*).

**trophic level**

**nivel trófico**

Literally feeding level, in a food web or chain, *eg* primary producer, primary consumer (herbivore), secondary consumer (carnivore 1), tertiary consumer (carnivore 2), and so forth. Organisms are assigned to the highest trophic level at which they are currently functioning but such assignment is normally ontogenetically variable in the case of consumers.

**trophodynamics**

**trofodinámica**

Study and description of mass and energy flow in a food web or chain, including input of solar energy, and output via the decomposer chain and into the sediments.

**tropical**

- (1) Oceanic zone where surface waters are at or in excess of 25° C throughout the year.
- (2) Pertaining to the zone between the Tropic of Cancer (23° 27' N) and the Tropic of Capricorn (23° 27' S).

**tropical species**

**especie tropical**

A species limited to the tropical zone (*cf* tropical).

**tropical submergence**

**submersión tropical**

Hypothesis that amphitropical populations are continuous (in deeper water), following temperature isotherms (*cf* antitropical).

**tropical-subtropical species**

**especie tropical-subtropical**

A species occurring in both the tropical and subtropical zones; for oceanic pelagic species, occurring in both central and equatorial water mass regions (*qv*) of one, two or all three warmwater oceans (*cf* warmwater species).

**tropism**

**tropismo**

Change in directional orientation or movement, or (plant) growth, due to an external stimulus.

**tubiculous**

**tubícola**

Tube-dwelling.

**turbid**

**turbio**

Of or pertaining to water this is not clear, usually because it contains fine suspended particulate matter (*cf* nepheloid layer).

**turbidity current**

**corriente de turbidez**

A form of density current. A downflow of water made more dense relative to surrounding waters by suspended particulate materials. Commonly initiated on a slope by strong wave action, seismic events or slumping. Such flows may reach the deepsea and indeed are credited with creating the peneplain-like abyssal topography of the western North Atlantic.

**turbulence**

**turbulencia**

Eddy generation by a moving fluid or by an object moving through a fluid; dissipates energy.

**turnover rate**

**tasa de renovación**

Measure of the velocity of movement of an element or compound in a biogeochemical cycle (*cf* residence time).

**tychopelagic**

**ticopelágico**

Used of organisms that are normally benthic but have been carried up into the water column by chance factors, such as storm events.

**type**

**tipo**

A zoological or botanical object (specimen, indication, etc.) which serves as the basis for the name of a taxon.

**type genus**

**género tipo**

The genus that is the type of a family level taxon.

**type species**

**especie tipo**

The species that is the type of a genus level taxon.

**type-locality**

**localidad tipo**

The locality at which a holotype, syntype, lectotype or neotype was collected.

**typological**

**tipológico**

A classification approach based on the assumption of an idealized uniform body plan (type) with any variation representing imperfections in the expression of this form, AKA "pigeon-holing" (comparable concepts include eidos; essentialism; gestalt).

## U

**ubiquitous****ubícuo, omnipresente**

Meaning "to occur everywhere", actually true of virtually no organism. Applied to the distribution of very broadly-distributed species.

**ultra-abyssal zone****zona ultraabasal**

Hadal zone (*qv*)

**ultra-abyssopelagic****ultraabisopelágico**

See hadopelagic.

**underdispersion (regular distribution)****subdispersión (distribución regular)**

See even.

**unicellular****unicelular**

Of or pertaining to single-celled organisms.

**universe****universo**

Statistics: The entire statistical population.

**unweighted pair group method**

Phenetics: clustering OTU's joining the smallest branches of the dendrogram first and the two largest last; each step groups together that pair of OTU's showing the greatest overall similarity (without averaging) to each other.

**upper water masses****masas de agua superficiales**

Principal tropical and subtropical water masses lying below the main thermocline and above intermediate water, typically between depths of 200 - 800 m.

**upwelling****afloramiento**

Wind-driven upward movement of subsurface waters caused by displacement of surface waters by prevailing winds and Ekman surface drift (*cf* Ekman layer). Upwelling is an important source of nutrient replenishment in tropical and subtropical waters where it occurs (*eg* in eastern boundary current regions, equatorial divergence zones, in association with monsoonal wind fields, etc.) (*cf* coastal upwelling).

## V

**vadal**

Floating close to shore.

**vagile****errante**

Applied to an organism free to move about (*cf* sessile).

**vagility****mobilidad**

(1) Freedom of motility of an organism.

(2) The tolerance of an organism to a wide range of environmental conditions, may be qualified as "high" or "low".

**valid****válido**

Taxonomy: Used of a name or nomenclatural act that is correct according to the provisions of the Code. (*cf* ICZN; ICBN)

**validation****validación**

The confirmation by data or a specialist that information is correct

**Venice System****sistema de Venecia**

System for the classification of brackish water based on the chlorinity.

**vernacular name****nombre vernáculo**

Taxonomy: The common name of a species or group; not used in accord with ICZN naming rules.

**vernal****primaveral**

Of or pertaining to the spring season of the year, that period between the vernal equinox and the summer solstice, in the northern hemisphere from about March 21 to June 21 (*cf* autumnal).

**vertebrate****vertebrado**

Organisms with backbones or vertebrae.

**vespertine****vespertino**

Pertaining to evening; the civilized part of crepuscular (*qv*).

**vicariance biogeography**

**biogeografía vicariante**

A "school" of biogeographical thought derived from Croizat's Panbiogeography. Supporters believe that disjunctions in ranges much more commonly derive from interposition of new barriers in formerly continuous ranges (dividing whole floras and faunas) than from chance dispersal events (affecting single species and populations (usually)). They basically reject sweepstakes routes and land bridges in biogeographic explanation.

Two other major schools are the center of origin/dispersal approach (*qv*) and cladistic biogeography (*qv*). With respect to predicted location of plesiomorph taxa, the former predicts extinction of such species within the evolutionary centers, and their occurrence in sites / habitats peripheral to such centers. Cladistic biogeography predicts the reverse. Vicariance biogeography takes no position in this debate. (*cf* historical biogeography)

**vicariant event**

**evento vicariante**

The geographical separation of a species by interposition of a new barrier, with allopatric speciation a quite likely consequence. Also the separation of formerly continuous floras and/or faunas.

**vitality**

**vitalidad**

The condition or vigor of organisms in a community, mainly their capacity to live and complete their life cycle within the community.

## W

**waif**

**expatriado**

(1) A single organism or small group of organisms found outside of its (their) normal range, presumably thereto advected by unusual current or weather conditions.

(2) Members of a population which are predictably transported to a "sink", outside of their normal reproductive range where they do not reproduce (*cf* allogenetic plankton, expatriation).

**Wallacea**

Wallacea encompasses the eastern Indonesian seas, the major tropical seaway connecting the Indian and Pacific Oceans and their only tropical connection during Pleistocene glaciation. Wallacea lies between Wallace's Line (east of the Philippines and south to between Bali and Lombok) and Lyddecker's Line (west of New Guinea, east of Ceram and the Kai and Tanimbar Islands).

**warm core ring**

**anillo de centro cálido**

A mesoscale (*cf* mesoscale feature)( anticyclonic gyre with downwelling at the center of the system, typically formed as an eddy from a western boundary current such as the Gulf Stream. May entrain localized populations for periods lasting weeks to months.

**warm-water species**

**especie de aguas cálidas**

Species occurring in the open ocean between the subtropical convergences (ca 40° N to 40° S).

**warmwater cosmopolitan**

**cosmopolita de aguas cálidas**

A species very broadly distributed in the warmwater ocean *ie* that fraction of the global oceanic environment between (about) 40° N and 40° S.

**water mass**

**masa de agua**

Here meant as principal water mass defined by a near constant and predictable envelope of temperature and salinity relationships (*cf* T-S curve, T-S envelope). Water mass properties imply a restricted locality or zone of origin, typically at or near the surface, at high latitude, in winter.

**water pollution**

**contaminación acuática**

Any detrimental changes in water quality (temperature, chemical composition, etc) usually due to human activities.

**water-mass boundary**

**límite de la masa de agua**

The (typically) ecotonal zone separating core regions underlain by the principal upper water masses (*qv*). The water mass boundary may affect the distribution of organisms, and does not extend to the surface of the ocean, although the vertical distribution of the organism may do so.

**water-mass hypothesis**

The concept that distributional boundaries of pelagic species and pelagic species assemblages are caused by ocean circulation, and associated with water mass boundaries. The cyclonic and anti-cyclonic gyres and boundary currents then form different biological provinces with climatic differences and different sets of nutrient and temperature characteristics .

**water-mass region**

A sea surface plot of the area underlain by the core (typical and diagnostic T-S envelope and other features) of one of the principal upper water masses.

**West Wind Drift**

**Deriva Oceánica del Oeste**

The largest and most important ocean current in the southern hemisphere, flowing in an easterly direction around Antarctica. The total transport of this system, ca 100 Sv. (*qv*) is roughly two orders of magnitude greater than the total output of all the rivers of the world.

Typified by low salinity (less than 34.7 ppt) cold temperatures (-1° to 5° C), and large sea waves and swell.

**western boundary current**

**corriente de margen occidental**

The relatively deep, fast, narrow, low productivity near-coastal limb of the great subtropical anticyclonic gyres found on the western margin of oceans (especially the Atlantic and Pacific); *eg* the Gulf Stream and Kuroshio Currents.

**wind forcing**

**forzante de viento**

An event or series of events driven by wind energy. Such phenomena occur over a wide variety of spatial and temporal scales, from short-lived and local, to major ENSO (*qv*) and monsoonal events (*cf* monsoon) that can affect significant portions of whole ocean basins.

**winter kill**

**mortalidad masiva invernal**

**Death of large numbers of organisms due to adverse winter conditions.**

## X, Y, Z

### x-axis

#### eje x

Horizontal axis of a two-dimensional graph -- the abscissa.

### xenogenous

#### xenogénico

Allochthonous (*qv*).

### xeric

#### xérico

A dry habitat, as opposed to wet (hydric) or intermediate (mesic) environments. Even environments with ample free water may be physiologically xeric, as in salt marshes and mangrove forests.

### y-axis

#### eje y

Vertical axis of a two-dimensional graph -- the ordinate.

### yellow matter

Gelbstoff (*qv*)

### zeitgeber

Any external stimulus that acts to trigger or phase a biological rhythm; a synchronizer.

### zenith

#### cenit

The highest point in the sun's daily traverse across the sky; position of the sun at local apparent noon.

### zonal

Term used to describe objects or events mainly in a longitudinal (east-west) direction, eg the zonal flow of the equatorial currents and countercurrents (*cf* meridional).

### zonation

#### zonación

The distribution of organisms in distinctive and sequential layers, zones or areas.

### zoobenthos

#### zoobentos

Animals living on (epifauna(*qv*)) or in (infauna (*qv*)) the bottom.

### zoogeographic region

#### región zoogeográfica

Biogeographic region (*qv*), pertaining specifically to animals.

### zoogeography

#### zoogeografía

The study of the distribution of animals in all spatial and temporal scales,

including both historical and ecological approaches. The biogeography (*qv*) of animals.

**zooplankton**

**zooplanton**

Heterotrophic (protists and animals) plankton (*qv*).

**zooxanthellae**

**zooxantelas**

Endosymbiotic mutualistic dinoflagellates associated with hermatypic scleractinian corals and certain other marine invertebrate groups (*eg* tridacnid bivalves).

## SPANISH LIST OF TERMS

(when the spelling of English and Spanish terms is the same they are not in this list so please check also the main Glossary)

### A

a lo largo de la costa = longshore  
abisal = Abyssal  
abisobéntico = abyssobenthic  
abisopelágico = abyssopelagic  
abundancia = abundance  
aclimatación = Acclimation  
aclimatación transitoria = acclimatization  
acomodación biológica = biological accommodation  
adaptación = adaptation  
adecuación = fitness  
adnato = adnate  
advección = advection  
afloramiento = upwelling  
afloramiento costero = coastal upwelling  
agregación = aggregation  
agregación = patchiness  
agregado = aggregated  
agregados = aggregates  
agua central = central water  
agua de talud = Slope Water  
aguas cálidas vs aguas frías = cold-water *vs* warm-water  
aguas costeras = coastal waters  
aguas dulces = freshwater  
aguas salobres = brackish waters  
aislamiento = isolation  
aislamiento geográfico = geographic isolation  
al azar = random  
albedo = albedo  
albufera = lagoon  
aleatorio = random  
alelopatía = allelopathy  
alelos = alleles  
algoritmo = algorithm  
alimentación no selectiva = fine-grain exploitation  
allocórico = allochoric  
alóctono = allochthonous  
alóctono = endemic  
alometría = allometry  
alopatria = allopatry  
alotípico = allotype  
alotópico = allotopic  
alozima = allozyme  
altricial = altricial  
ambiente = environment  
ámbito = ambit

amensalismo = amensalism  
amíctico = amictic  
amplitud del nicho = niche breadth  
amplitud ecológica = ecological amplitude  
anádromo = anadromous  
anagénesis = anagenesis  
análisis de componentes principales (ACP) = principal component analysis (PCA)  
análogo = analogous  
anfi- = amphi-  
anfitropical = amphitropical  
anillo de centro cálido = warm core ring  
anillo de centro frío = cold core ring  
anomalía = anomaly  
anóxico = anoxic  
antártico = antarctic  
anticiclón = anticyclone  
anticiclón subtropical = subtropical anticyclone  
apomorfo = apomorphic  
aptitud, adecuación = fitness  
árbol de estados de carácter = character state tree  
árbol filogenético = phylogenetic tree  
archipiélago = archipelago  
área = range  
área T-S = T-S envelope  
arenícola = arenicolous  
arquibentico = archibenthic  
arrecife coralino = coral reef  
arrecife costanero = fringing reef  
arrecife de orla = fringing reef  
asimetría = skewness  
asociación = association  
atalón = atoll  
Australasia = Australasian Region  
autóctono = autochthonous  
autoecología = autecology  
autofecundación = selfing  
autogénico = authogenic  
autopomorfía = autapomorph  
autotrófico = autotrophic  
auxotrófico = auxotrophic  
ave marina = sea bird

## B

bacterioneuston = bacterioneuston  
bacteriplancton = bacteriplankton  
barlovento = leeward  
baroclínico = baroclinic  
barotropismo = barotropism  
barrera = barrier  
barrera del Pacífico este = East Pacific Barrier  
barrera terrestre del Nuevo Mundo = New World Land Barrier  
barrera terrestre del Viejo Mundo = Old World Land Barrier

batimetría = bathymetry  
batipelágico = bathypelagic  
bético = benthic  
bentónico = benthic  
bentopelágico = benthopelagic  
bentos = benthos  
bioacústica = bioacoustics  
biocenosis = biocoenosis  
bioestratigrafía = biostratigraphy  
biogénesis = biogenesis  
biogenia = biogeny  
biogeografía = biogeography  
biogeografía cladística = cladistic biogeography  
biogeografía de islas = island biogeography  
biogeografía dispersiva = dispersal biogeography  
biogeografía ecológica = ecological biogeography  
biogeografía histórica = historical biogeography  
biogeografía pelágica = pelagic biogeography  
biogeografía vicariante = vicariance biogeography  
bioherma = bioherm  
biología marina = marine biology  
biología pesquera = fisheries biology  
biología poblacional = population biology  
bioluminiscencia = bioluminescence  
bioluminiscente = luciferous  
bioluminiscente = noctilucent  
bioma = biome  
biomasa = biomass  
biometría = biometrics  
biomonitoreo = biomonitoring  
biota = biota  
biotopo = biotope  
bioturbación = bioturbation  
bipolaridad = bipolarity  
borde de plataforma = shelf break  
bradítelico = bradytelic

## C

cadena alimentaria = food chain/food web  
cambio del nicho = niche shift  
camino = pathway  
camuflaje = camouflage (crypsis)  
canalización = canalization  
capa de mezcla = mixed layer  
capa de mínimo de oxígeno = oxygen-minimum layer  
capa difusora = scattering layer  
capa difusora profunda (CDP) = DSL  
capa nefeloide = nepheloid layer  
capa superficial = surface layer  
capacidad de carga = carrying capacity  
capa de Ekman = Ekman layer

caracter = character  
caracter = trait  
caracter dicotómico = dichotomous character  
caracter merístico = meristic character  
caracteres correlacionados = correlated characters  
caracter poligénico = polygenic character  
carcinología = carcinology  
cardúmen = school  
carnívoro = carnivorous  
carta = map  
catádromo = catadromous  
categoría = category  
célula de Hadley = Hadley Cell  
cenit = zenith  
cenoclina = coenocline  
centro de origen = center of origin  
cetología = cetology  
ciclo biogeoquímico = biogeochemical cycle  
ciclo de vida = life cycle  
ciclo del taxón = taxon cycle  
ciclo hidrológico = hydrologic cycle  
ciclomorfosis = cyclomorphosis  
cyclónico = cyclonic  
ciénaga = helic (helium)  
ciénaga salina = salt marsh  
cieno de foraminíferos = foraminiferan ooze  
(CINB) Código Internacional de Nomenclatura Botánica = ICBN  
(CINZ) Código Internacional de Nomenclatura Zoológica = ICZN  
circulación abisal = abyssal circulation  
circulación de Langmuir, células de Langmuir = Langmuir circulation  
circulación termohalina = thermohaline circulation  
círculo de especies = Artenkreis  
círculo de formas = Formenkreis  
circulo de razas = Rassenkreis  
cladística = cladistics  
clado = clade  
cladogénesis = cladogenesis  
cladograma = cladogram  
cladograma de área = area cladogram  
clase de edad = age class  
clasificación = classification  
clasificación artificial = artificial classification  
clasificación de Braun-Blanquet = Braun-Blanquet Classification  
clasificación natural = natural classification  
clave dicotómica = dichotomous key  
climatología = climatology  
cline escalado = stepped cline  
cline gradual = smooth cline  
clorinidad = chlorinity  
clupeido pelágico = pelagic clupeoid  
coadaptación = co-adaptation  
COD = DOC

Código Internacional de Nomenclatura Botánica (CINB) = International Code of Botanical Nomenclature (ICBN)  
Código Internacional de Nomenclatura Zoológica (CINZ) = International Code of Zoological Nomenclature (ICZN)  
coevolución = coevolution  
cohorte = cohort  
colonia = colony  
color del océano = ocean color  
comensalismo = commensalism  
comensalismo = inquilinism  
competencia = competition  
comportamiento antagónico = antagonistic behavior  
comunidad = community  
comunidad climax = climax community  
comunidad de plantas acuáticas sumergidas = hydatophytum  
comunidad de torrente = rhyacium  
concepto de superorganismo = super-organism concept  
conexión terrestre = land bridge  
congenérico = congeneric  
conjunto = assemblage  
conjunto aleatorio = random assemblage  
conjunto de especie = species assemblage  
conspecífico = conspecific  
consumidor de material depositado  
consumidor de material en suspensión = suspension feeder  
consumidores = consumers  
contaminación acuática = water pollution  
continuo = continuum  
convergencia = convergence  
convergencia subtropical = subtropical convergence  
convexión = convection  
COP = POC  
corología = chorology  
corredor = corridor  
correlación = correlation  
corriente de densidad = density current  
corriente de margen = boundary current  
corriente de margen occidental = western boundary current  
corriente de margen oriental = eastern boundary current  
corriente de turbidez = turbidity current  
corriente geostrófica = geostrophic current (flow)  
cosecha = standing crop  
cosecha máxima sostenible = maximum sustained yield  
cosecha óptima = optimal yield  
cosmopolita = cosmopolitan  
cosmopolita de aguas cálidas = warmwater cosmopolitan  
costero = nearshore, coastal  
coterminal = coterminous  
crecimiento determinado = determinate growth  
crecimiento exponencial = exponential growth  
crecimiento indeterminado = indeterminate growth  
crecimiento logístico = logistic growth

cresta centro-oceánica = mid-ocean ridge  
criopelágico = cryopelagic  
crioplanton = cryoplankton  
cripsis = crypsis, camouflage  
cuadrado = quadrat  
cuadratura = quadrature  
cuantitativo = quantitative  
cuantitativo = quantitative  
cuello de botella = bottleneck  
cuenca = basin  
curtosis = kurtosis  
curva de especies-área = species-area curve  
curva de supervivencia = survivorship curve  
curva T-S = T-S curve

## D

de marjal = helic (helium)  
de torrente = torrenticulous  
deficiencia de oxígeno = oxygen debt  
degeneración = degeneration  
dendrograma = dendrogram  
densidad = density  
denso-dependiente = density-dependent  
denso-independiente = density-independent  
depósito = sink  
de profundidad = profundal  
deriva = drift  
deriva continental = continental drift  
deriva génica = genetic drift  
Deriva Oceánica del Oeste = West Wind Drift  
derivativo = derivative  
descomponedor = decomposer  
desovar = spawn  
desove = spawn  
desplazamiento de carácter = character displacement  
detritívoro = detritivore, scavenger  
detritos = detritus  
día mareal = tidal day  
día sidéreo = sidereal day  
día solar = solar day  
diádromo = diadromous  
diapausa = diapause  
diastrofismo = diastrophism  
dicopátrico = dichopatric  
diferenciación = differentiation  
dimictico = dimictic  
dinámica = dynamics  
disfótico = dysphotic  
dispersión = dispersal  
dispersión = dispersion  
distancia = distance  
distancia cladística = cladistic distance

distancia fenética = phenetic distance  
distancia patrística = patristic distance  
distribución = distribution  
distribución binomial negativa = negative binomial distribution  
distribución contagiosa = contagious distribution, patchiness  
distribución en banda = ribbon distribution  
distribución relictual = relictual distribution  
distrófico = dystrophic  
disyunto = disjunct  
diurno = diurnal  
divergencia = divergence  
divergencia de Ekman = Ekman divergence  
diversidad = diversity  
diversificación = diversification  
diversificación del nicho = niche diversification  
dominancia = dominance  
dominio = domain  
domo = dome

## E

ecléctico = eclectic  
ecofeno = ecophene  
ecofenotípico = ecophenotypic  
ecofisiología = physiological ecology  
ecología = ecology  
ecología de sistemas = systems ecology  
ecología fisiológica = physiological ecology  
ecología marina = marine ecology  
ecología poblacional = population ecology  
ecosistema = ecosystem  
ecotipo = ecotype  
ecotonía = ecotone  
ectotérmico = ectotherm  
ecuaciones de Lotka-Volterra = Lotka-Volterra equations  
ecuatorial = equatorial  
efecto de borde = edge effect  
efecto de isla = island effect  
efecto fundador = founder effect  
efecto invernadero = greenhouse effect  
eficiencia ecológica = ecological efficiency  
eje x = x-axis  
eje y = y-axis  
electromorfo = electromorph  
elevación continental = continental rise  
emigración = emigration  
enanismo = dwarfism  
endemismo = endemism  
endobentico = endobenthic  
endolítico = endolithic  
endotérmico = endotherm  
enriquecimiento = enrichment

entrada = inlet  
epibético = epibenthic  
epifítico = epiphyte  
epilimnio = epilimnion  
epipelágico = epipelagic  
epipélico = epipelagic  
epiplancton superficial = phaoplankton  
epitóquico = epitokous  
epizoico = epizoic  
equilibrio de Hardy-Weinberg = Hardy-Weinberg equilibrium  
equilibrio entre especies = species equilibrium  
equilibrio génico = genetic equilibrium  
equilibrio puntuado = punctuated equilibria  
equitabilidad = equitability  
errante = vagile  
escala = scale  
escala de Beaufort = Beaufort Scale  
especiación = speciation  
especiación alocrónica = allochronic speciation  
especiación alopátrica = allopatric speciation  
especiación centrífuga = centrifugal speciation  
especiación clinal = clinal speciation  
especiación estasipátrica = stasipatric speciation  
especiación parapátrica = parapatric speciation  
especiación simpátrica = sympatric speciation  
especialista = specialist  
especialización = specialization  
especie = species  
especie accidental = accidental species  
especie agámica = agamospecies  
especie alocrónica = allochronic species  
especie antitropical = antitropical species  
especie competitivamente dominante = competitively dominant species  
especie complementaria = complementary species  
especie críptica = cryptic species  
especie de aguas cálidos = warm-waterspecies  
especie de borde = edge species  
especie de giro central = central water species  
especie de profundidades medias = mid-depth species  
especie de profundidades medias = midwater species  
especie dominante = dominant species  
especie ecológicamente equivalente = ecologically equivalent species  
especie ecuatorial = equatorial species  
especie exclusiva = exclusive species  
especie fugitiva = fugitive species  
especie gemela = sibling species  
especie hija = daughter species  
especie indicadora = index species  
especie indicadora = indicator species  
especie indiferente = indifferent species  
especie instantánea = instantaneous species  
especie introducida = introduced species

especie monotípica = monotypic species  
 especie nativa = native species  
 especie oportunista = opportunistic species, fugitive species  
 especie politípica = polytypic species  
 especie preferencial = preferential species  
 especie selectiva = selective species  
 especie sincrónica = synchronic species  
 especie subtropical = subtropical species  
 especie tipo = type species  
 especie transicional = transition region species  
 especie tropical = tropical species  
 especie tropical-subtropical = tropical-subtropical species  
 espectro de acción = action spectrum  
 espectro de partículas = particle spectrum  
 esporádico = sporadic  
 estabilidad = stability  
 estación = station  
 estadío = instar  
 estadística = statistic  
 estadística no paramétrica = nonparametric statistic  
 estadística paramétrica = parametric statistic  
 estado de carácter = character state  
 estado de carácter ancestral = ancestral character state  
 estado seral = seral stage  
 estática = statics  
 estenofagia = stenophagy  
 estenohalino = stenohaline  
 estenotérmico = stenothermal  
 estenotípico = stenotopic  
 estereotaxis = stereotaxis  
 estímulo = stimulus  
 estival tardío = serotinal  
 estoia = slack water  
 estratega C = C-strategist  
 estratega competitivo = C-strategist  
 estratega S = S-strategist  
 estrategia del ciclo vital = life history strategy  
 estratificación = stratification  
 estratificación faunística = faunal stratification  
 estratificación química = chemical stratification  
 estratificación térmica = thermal stratification  
 estratigrafía = stratigraphy  
 estratocenosis = stratocoenosis  
 estructura poblacional = population structure  
 estuarial = ecranic  
 estuario = estuary  
 estuario negativo = negative estuary  
 estuario neutral = neutral estuary  
 estuario positivo = positive estuary  
 estudio = survey  
 euri- = eury -  
 eurihalino = euryhaline

euritérmico = eurythermal  
eurítópico = eurytopic  
eustático = eustatic  
eutroficación cultural = cultural eutrophication  
eutroficación = eutrophication  
eutrofización = eutrophication  
eutrófico = eutrophic  
evento vicariante = vicariant event  
evolución = evolution  
evolución en mosaico = mosaic evolution  
evolución reticulada = reticulate evolution  
exclusión competitiva = competitive exclusion  
excursión = excursion  
exisencia = standing crop  
existencia = pool  
existencia = standing stock  
existencia activa = active pool  
existencias = stock  
expatriación = expatriation  
expatriado = waif  
explotación de grano grueso = coarse-grain exploitation  
explotación selectivo = selective exploitation  
extinción = extinction

## F

facilitación social = social facilitation  
factor limitante = limiting factor  
factores abióticos = abiotic factors  
factores bióticos = biotic factors  
facultativo = facultative  
familia = family  
fango = ooze  
fango de diatomeas = diatom ooze  
fango de foraminíferos = foraminiferan ooze  
fango de globigerinas = *Globigerina* ooze  
fango de pterópodos = pteropod ooze  
fango de radiolarios = radiolarian ooze  
fango rojo = red clay  
fango terrígeno = terrigenous mud  
faunística = faunistics  
fenética = phenetics  
fenocopia = phenocopy  
fenograma = phenogram  
fenología = phenology  
fenómeno de El Niño = ENSO event  
fenón = phenon  
fenotipo = phenotype  
ficocenología = phycocoenology  
fidelidad = fidelity  
filogenia = phylogeny  
filopatria = philopatry

filtro = filter  
fiordo = fjord  
física = physics  
fisionomía = physiognomy  
fitobentos = phytobenthos  
fitogeografía = phytogeography  
fitoplancton = phytoplankton  
fitosociología = phytosociology  
fitotélmico = phytotelmic  
floración = bloom  
florística = floristics  
flujo génico = gene flow  
fluvial = riverine  
fondo de reserva = reservoir pool  
foresis = phoresy  
formación = formation  
forzante de viento = wind forcing  
fotóforo = photophore  
fotoperíodo = photoperiodism  
fototrófico = phototrophic  
fototrópico = phototropic  
fragilidad = fragility  
freático = phreatic  
frecuencia alozímica = allozyme frequency  
frecuencia génica = gene frequency  
frente = front  
frente hidroquímico = hydrochemical front  
función forzante = forcing functions

## G

generación = generation  
generación espontánea = spontaneous generation  
generalista = generalist  
género = genus  
género tipo = type genus  
genética = genetics  
genética poblacional = population genetics  
genotipo = genotype  
geografía = geography  
geotrópico = geotropic  
gigantismo = gigantism  
ginocórico = gynochoric  
giro monsónico = monsoon gyre  
giro = eddy, gyre  
giro central = central gyre  
Gondwana = Gondwanaland  
gonocorismo = gonochorism  
gradiente latitudinal de diversidad = latitudinal diversity gradient  
grado = grade  
graduacion filético = phyletic gradualism  
gremio = guild

gremio alimentario = feeding guild  
grupo hermano = sister group  
grupo recurrente = recurrent group

## H

hábitat = habitat  
hacia tierra = inshore  
hadopelágico = hadopelagic  
haloclina = halocline  
halofílico = halophilic  
halofítico = halophyte  
heliotrópico = heliotropic  
hemianual = semestrial  
hemiplancton = hemiplankton  
herbívoro = herbivore  
hermafroditismo = hermaphroditism  
hermafroditismo sincrónico = synchronous hermaphroditism  
heteroconismo = heterochrony  
heterógrado = heterograde  
heterospecífico = heterospecific  
heterotrófico = heterotrophic  
heurístico = heuristic  
hibridación = hybridization  
hibridización introgresiva = introgressive hybridization  
híbrido = hybrid  
hidrobios = hydric  
hidrocórico = hydrochoric  
hidrófita = hydrophyte  
hidrografía = hydrography  
hidrología = hydrology  
hidroplankton = hidroplancton  
hidrotaxis = hydrotaxis  
hidrotectónica = hydrotectonics  
hiperbético = hyperbenthic  
hiperosmótico = hyperosmotic  
hipersalino = hypersaline  
hipodigma = hypodigm  
hipolimnio = hypolimnion  
hiponeuston = hyponeuston  
hipoosmótico = hypoosmotic  
hipótesis de equilibrio = equilibrium hypothesis  
hipótesis de perturbación intermedia = intermediate disturbance hypothesis  
hipótesis del centro de origen/dispersión = center-of-origin/dispersal approach  
hipótesis del tiempo-estabilidad = time-stability hypothesis  
hipótesis nula = null hypothesis  
hipóxico = hypoxic  
holobético = holobenthic  
holobentónico = holobenthic  
holofilético = holophyletic  
holofítico = holophytic  
holopelágico = holopelagic  
holoplancton = holoplankton

holotipo = holotype  
holozoico = holozoic  
homeotermo (endotermo) = homiotherm (endotherm)  
homocedasia = homoscedasticity  
homoiosmótico = homoiosmotic  
homología = homology  
homólogo = homologous  
homónimo = homonym  
homoplasia = homoplasy  
horotélico = horotelic  
huésped = host  
hundimiento (de masa de agua) = downwelling  
hurgando = browsing

## I

ictiología = ichthyology  
ictiplancton = ichthyoplankton  
iliófago = limivorous  
iliófago = limophagous  
índice de afinidad = affinity index  
índice de diversidad = diversity index  
indígena = indigenous  
infaunal = endobenthic  
infraespecífico = infraspecific  
infralitoral = infralittoral  
inmigración = immigration  
insolación = insolation  
interacción = coaction  
interanual = interannual  
interespecífico = interspecific  
interfase aire-agua = air-sea interface  
intraespecífico = intraspecific  
intrusión subsuperficial = subsurface intrusion  
investigación = survey  
irrupción = eruption  
isla continental = continental island  
isla oceánica = oceanic island  
isobara = isobar  
isobata = isobath  
isoenzima = isoenzyme  
isofena = isophene  
isoluma = isolume  
isometría = isometry  
isoosmótico = isoosmotic (isosmotic)  
isopicna = isopycnal  
isopleta = isopleth  
isostasis = isostasy  
isoterma = isotherm  
isozima = isozyme  
iteroparidad = iteroparity

## J

jerarquía de dominancia = dominance hierarchy  
jerarquía taxonómica (linnena) = taxonomic (Linnean) hierarchy

## K

K-selección = K-selection

## L

lábil = labile  
lacustre = lacustrine  
lago hipersalino = salt lake  
lago salado = salt lake  
laguna costera = lagoon  
lance con red de apertura y cierre = closed net haul  
lance con red sin apertura-cierre = open net haul  
lance de red estratificado = stratified net haul  
latifénico = latiphenic  
lecitotrófico = lecithotrophic  
lectotipo = lectotype  
lenítico = lentic  
léntico = lentic  
lenítico = lentic  
leptofénico = leptophenic  
ley de Bergmann = Bergmann's Rule  
ley de Jordan, regla de Jordan = Jordan's laws  
ley del mínimo = law of the minimum  
ley del mínimo de Liebig = Liebig's law of the minimum  
libre nadador = free-swimming  
ligamiento = linkage  
limícola = limicolous  
límite biogeográfico = biogeographic boundary  
límite de la masa de agua = water-mass boundary  
límite faunístico = faunal boundary  
limnobios = limnium  
limnodio = limnodium  
limnología = limnology  
litoral = littoral  
localidad tipo = type-locality  
longevidad = longevity  
lótico = fluvial  
lótico = lotic  
luminiscencia = luminescence  
lutícola = luticolous

## M

macroescala = macroscale feature  
macroevolución = macroevolution  
macrófita = macrophyte  
macronutriente = macronutrient  
macroorganismos = macroorganisms

macroplancton = macroplankton  
macrozooplankton = macrozooplankton  
magnificación alimentaria = food chain magnification  
magnificación biológica = biological magnification  
malacología = malacology  
mamífero marino = marine mammal  
manglar = halodrymium  
mapa = map  
mar adentro = offshore  
mar de Tethys = Tethys Sea  
mar epicontinental = epeiric sea, epicontinental sea  
mar interior = inland sea  
mar lechoso = milky seas  
marea = tide  
marea bajante = ebb tide  
marea creciente = flood tide  
marea de sicilia = spring tide  
marea roja = red tide  
marea semi-diurna = semidiurnal tide  
mareas de cuadratura = neap tides  
mareas de perigeo = perigean tides  
margen continental = continental margin  
mariscos = shellfish  
marisma = helic (helium)  
marisma de marea = tidal marsh  
marisma salina = salt marsh  
marjal salino = salt marsh  
masa de agua = water mass  
masa de agua de fondo = bottom water mass  
masa de agua intermedia = intermediate water mass  
masa de agua profunda = deep water mass  
masas de agua superficiales = upper water masses  
matriz de datos = data matrix  
máximo de clorofila = chlorophyll maximum  
mecanismo de aislamiento 1. Definición = isolating mechanism(s) 1. Definition  
mecanismo de aislamiento. 2. Categorías = isolating mechanism(s) 2. Categories.  
medición euleriana = Eulerian measurement  
medición lagrangeana = Lagrangian measurement  
megaplacton = megaplankton  
meiobentos = meiobenthos  
meromíctico = meromictic  
meropelágico = meropelagic  
meroplankton = meroplankton  
mesoescala = mesoscale feature  
mesopelágico = mesopelagic  
mesoplankton = mesoplankton  
metapoblación = metapopulation  
método de núcleo de masa de agua = core method  
mezcla = overturn  
mezcla de otoño = fall overturn  
microclima = microclimate  
microevolución = microevolution

microhábitat = microhabitat  
micronecton = micronekton  
micronutriente = micronutrient  
microorganismo = microorganism  
microplancton = microplankton  
míctico = mictic  
migración = migration  
migración vertical diaria = diel vertical migration  
migración vertical diurna = diurnal vertical migration  
migración vertical inversa = reverse vertical migration  
milla náutica = nautical mile  
miltivariado = multivariate  
mimetismo = camouflage (crypsis)  
mobilidad = vagility  
moco = slime  
modelo = pattern  
modelo fuente-sumidero = source-sink model  
modelo tricelular = Tricellular Model  
modo Q = Q-mode  
modo R = R-mode  
monitoreo remoto = remote sensing  
monofilético = monophyletic  
monomíctico = monomictic  
monomórfico = monomorphic  
monotético = monothetic  
monotípico = monotypic  
monotópico = monotopic  
monsón = monsoon  
monsón NE = NE monsoon  
monsón sudoeste = Southwest Monsoon  
morfoclina = morphocline  
morfología funcional = functional morphology  
morfotipo = morphotype  
mortalidad masiva estival = summer kill  
mortalidad masiva invernal = winter kill  
móvil = motile  
muestreo de profundidades discretas = discrete depth sampling  
mutación = mutation  
mutualismo = mutualism

## N

nanoplancton = nanoplankton  
natatorio = natatorial  
necton = nekton  
neontología = neontology  
neotenia = neoteny  
neotipo = neotype  
nerítico = neritic, coastal, nearshore  
nerítico-pelágico = neritopelagic  
neutralismo = neutralism  
nicho = niche  
nicho ecológico = ecological niche  
nicho efectivo = realized niche  
nicho fundamental = fundamental niche  
nicho potencial = potential niche  
nicho realizado = realized niche  
nictipelágico = nyctipelagic  
nieve marina = marine snow  
nivel trófico = trophic level  
nocturno = nocturnal  
nodo = node  
nomenclatura = nomenclature  
nombre aceptado = accepted name  
nombre vernáculo = vernacular name  
nominado = nominate  
nudo = knot  
nueva especie = sp. nov.  
números aleatorios = random numbers  
nutriclina = nutricline  
nutriente = nutrient

## O

obligado = obligate  
occidental  
oceánico = oceanic  
Océano Artico = Arctic Ocean  
Océano Atlántico = Atlantic Ocean  
Océano Indico= Indian Ocean  
Océano Pacifico = Pacific Ocean  
oceanografía = oceanography  
oceanografía biológica = biological oceanography  
oligomíctico = oligomictic  
oligotrófico = oligotrophic  
omnipresente = ubiquitous  
omnívoro = omnivorous  
onda interna = internal wave  
onomatóforo, portador de nombre = onomatophore  
ontogenia = ontogeny  
óptimo = optimal  
ordenamiento = ordination  
organismos sensitivo = sensitive organisms  
origen = provenance

orogenia = orogeny  
ortogénesis = orthogenesis  
ortoselección = kin selection  
osmoregulación = osmoregulation  
otoñal = autumnal

## P

paidogénesis = paedogenesis  
paidomorfosis = paedomorphosis  
paleocirculación = paleocirculation  
paleontología = paleontology  
palingenético = palingenetic  
palustre = paludal  
palustre = palustrine  
panbiogeografía = panbiogeography  
pandémico = pandemic  
Pantalasia = Panthalassa  
paradigma = paradigm  
paradoja del plancton = paradox of the plankton  
parafilético = paraphyletic  
paralelismo = parallelism  
parámetro = parameter  
parapatria = parapatry  
parasitismo = parasitism  
parásito = parasite  
paratipo = paratype  
parsimonia = parsimony  
partición de recursos = resource partitioning  
paso generalizado, rama generalizada = generalized track  
pastoreo = grazing  
patógeno = pathogen  
patrón de distribución concordante = concordant distribution pattern  
patrón = pattern  
peces deportivos = game fish  
peces deportivos = sport fish  
pelágico = pelagic  
pelagobios = pelagium  
pelón = dyticon  
penetrancia = penetrance  
perifiton = AUFWUCHS  
perifiton = periphyton  
periodicidad = periodicity  
período fenocrítico = phenocritical period  
perturbación = perturbation  
péssimo = pessimal  
pesticida = pesticide  
picnoclina = pycnocline  
picoplankton = picoplankton  
pionero = pioneer  
pirámide = pyramids  
pirámide ecológica (de Elton) = ecological (Eltonian) pyramid

pirámide invertida = inverted pyramid  
 plaga = pest  
 plancton = plankter  
 plancton = plankton  
 plancton alogenético = allogenetic plankton  
 plancton de red = net plankton  
 planicie costera = coastal plain  
 planicie de marea = tidal flat  
 plantas acuáticas flotantes = floating aquatic plants  
 plantas acuáticas flotantes = surface aquatic plants  
 plantas acuáticas superiores = higher aquatic plants  
 plantas emergentes = emersed aquatic plants  
 plasticidad = plasticity  
 plasticidad fenotípica = phenotypic plasticity  
 plataforma continental = continental shelf  
 pleitropía = pleiotropy  
 plesiomórfico = plesiomorphous  
 población = population  
 población aislada geográficamente = geographic isolate  
 poiquilo - = poikilo -  
 poiquilosmótico = poikilosmotic  
 poiquilotérmico = poikilotherm (ectotherm)  
 polifilético = polyphyletic  
 poligamia = polygamy  
 polígono de tolerancia = tolerance polygon  
 polihalino = polyhaline  
 polimítico = polymictic  
 polimorfismo = polymorphism  
 polimorfismo balanceado = balanced polymorphism  
 polimorfismo génico = genetic polymorphism  
 polinya = polynya  
 poliploidía = polyploidy  
 polítetico = polythetic  
 politipia = polytypy  
 politópico = polytopic  
 pónico = pontic  
 portador de nombre = onomatophore  
 possible = prospective  
 potámico = potamous  
 potamódromo = potamodromous  
 potamoplancton = potamoplankton  
 potencial reproductivo = reproductive potential  
 potencial = prospective  
 pradador = predator  
 preadaptación = preadaptation  
 precedencia = precedence  
 precoz = precocial  
 predación = predation  
 predador clave = keystone predator  
 presa = prey  
 presión hidrostática = hydrostatic pressure  
 primaveral = vernal

primitivo = primitive  
principio de Gause = Gause's principle  
probable = Prospective  
probabilidad = probability  
proceso determinístico = determinate growth  
proceso estocástico = stochastic process  
producción = production  
producción primaria = primary production  
producción primaria bruta = gross primary production  
producción primaria neta = net primary production  
producción secundaria = secondary production  
producción terciaria = tertiary production  
profundidad crítica = critical depth  
profundidad de compensación = compensation depth  
profundidad umbral = sill depth  
prolífico = prolific  
propiedad conservativa = conservative property  
propiedad no conservativa = nonconservative property  
protandria = protandry  
protooperación = protocooperation  
protoginia = protogyny  
provincia = province  
provincia biogeográfica = biogeographical province  
provincia faunística = faunal province  
provincialismo = provincialism  
psammon = dyticon  
pseudo-oceánico = pseudo-oceanic  
pseudopelágico = pseudopelagic  
pseudoplanton = pseudoplankton  
pseudovicariantes = pseudovicars  
puerta hidrográfica = hydrographic gate

## **Q**

quantum evolutivo = quantum evolution  
quiescente = quiescent  
quimioheterótrofo = chemoheterotroph  
quimiolítotrófico = chemolithotroph  
quimiotrófico = chemotrophic  
quimitaxis = chemotaxis

## **R**

radiación = radiation  
radiación adaptativa = adaptive radiation  
rama generalizada = generalized track  
rango = rank  
rango de abundancia = rank-abundance  
raro = rare  
raza = race  
raza ecológica = ecological race  
raza geográfica = geographical race  
recapitulación = recapitulation  
reclutamiento = recruitment

reconocimiento = survey  
rectilíneo = rectilinear  
red alimentaria = food chain/food web  
reducidores = reducers  
refugio = refugium  
región = region  
región biogeográfica (oceánica) = biogeographical region or realm (oceanic)  
región biogeográfica (terrestre) = biogeographical region or realm (terrestrial)  
región central = central region  
región ecuatorial = equatorial region  
región limítrofe = boundary region  
región pelágica = pelagic region  
región zoogeográfica = zoogeographic region  
regla de la desviación = rule of deviation  
regla de la progresión = progression rule  
regla ecogeográfica = ecogeographical rule  
regresión = regression  
regular = even  
reión de transición = transition region  
relación (filogenética) = relationship (phylogenetic)  
relación entre los isótopos del oxígeno = oxygen isotope ratio  
relación producción/biomasa = P/B ratio  
reloj molecular = molecular clock  
reología = rheology  
reotaxis = rheotaxis  
reservorio = sink  
resiliencia = resilience  
resistencia ambiental = environmental resistance  
respuesta funcional = functional response  
respuesta numérica = numerical response  
R-restratega = R-strategist  
ría = firth  
ripario = riparian  
riqueza específica = species richness  
ritmo biológico = biological rythm (rhythm)  
ritmo circadiano = circadian rythm (rhythm)  
ritmo endógeno = endogenous rythm (rhythm)  
ritmo exógeno = exogenous rythms (rhythms)  
ritron = rhithron  
ritron = rhithrous (rhithron)  
ruro = eddy  
ruta = pathway

## S

salinidad = salinity  
saltación (evolución saltatoria) only applies to evolution in Spanish = saltation (has more meanings in English)  
saproplancton = sapoplankton  
saturación = saturation  
seca = seiche  
sedimento biogénico = biogenic sediment  
selección = selection

selección direccional = directional selection  
selección disruptiva = disruptive selection  
selección estabilizante = stabilizing selection  
selección natural = natural selection  
selección normalizante = normalizing selection  
selección r = r-selection  
selectividad = electivity  
semelperiod = semelparity  
semianual = semestrial  
semi-especie = semispecies  
señal = signal  
senescencia = senescence  
serie = series  
serie de tiempo = time series  
serie de transformación = transformation series  
sésil = sessile  
sicigia = syzygy  
simbiosis = symbiosis  
simpatria = sympatry  
simpátrico adyacente = adjacently sympatric  
simplesiomorfía = symplesiomorphy  
sinapomorfía = synapomorphy  
sinecología = synecology  
sinergismo = synergism  
sinónimo = synonym  
sinóptico = syntopic  
síntesis = synthesis  
sintipo = syntype  
sistema de Venecia = Venice System  
sistema jerárquico = hierarchical system  
sistema semi-cerrado = semi-enclosed system  
sistematización = systematics  
sistematización evolutiva = evolutionary systematics  
sobredispersión = overdispersion  
subantártico = subantarctic  
subártico = subarctic  
subdispersión (distribución regular) = underdispersion (regular distribution)  
subespecie = subspecies  
submergente = submergent  
submersión = submergence  
submersión tropical = tropical submergence  
sucesión = succession  
sucesión hidrálica = hydrarch succession  
sucesión primaria = primary succession  
sucesión secundaria = secondary succession  
superespecie = superspecies  
superposición de nichos = niche overlap  
suprabentónico = suprabenthic  
sustancia mucosa = mucose substance  
sustrato = substrate  
sustrato = substratum

**T**

tafonomía = taphonomy  
 talásico = thalassic  
 talasódromo = oceanodromous  
 talud continental = continental slope  
 tanatocenosis = thanatocoenosis  
 taquitélico = tachytelic  
 tasa de fecundidad específica = age-specific fecundity rate  
 tasa de mortalidad específica = age-specific death rate  
 tasa de renovación = turnover rate  
 tasa intrínseca de crecimiento = intrinsic rate of increase  
 taxón = taxon  
 taxones coordinados = coordinate taxa  
 taxonomía = taxonomy  
 taxonomía beta = beta taxonomy  
 taxonomía descriptiva = alpha taxonomy  
 taxonomía gamma = gamma taxonomy  
 taxonomía numérica = numerical taxonomy  
 tectónica = tectonics  
 tectónica de placas = plate tectonics  
 teleología = teleology  
 teleplánico = teleplanic  
 teoría de aprovisionamiento óptimo = optimal foraging theory  
 teoría de forrajeo óptimo = optimal foraging theory  
 termobios = thermium  
 termoclina = thermocline  
 termoregulación = thermoregulation  
 termotaxis = thermotaxis  
 territorio = territory  
 test biológico = bioassay  
 ticopelágico = tychopelagic  
 tiempo de residencia = residence time  
 tigmotaxis = thigmotaxis (stereotaxis)  
 tipo = type  
 tipológico = typological  
 tolerancia = tolerance  
 topotipo = topotype  
 torbellino de mesoscala = mesoscale eddy  
 torbellino = eddy  
 totipotente = totipotency  
 toxicidad = toxicity  
 tóxico = toxicant  
 transecta = transect  
 transgresión = transgression  
 transporte = transport  
 trazador = tracer  
 trazador biológico = biological tracer  
 triángulo C-R-S = C-S-R triangle  
 trofodinámica = trophodynamics  
 tropismo = tropism  
 tubícola = tubicolous  
 turbio = turbid

turbulencia = turbulence

## **U**

ubícuo = ubiquitous

ultraabisopelágico = ultra-abyssopelagic

umbral = threshold

unicelular = unicellular

universo = universe

## **V, W**

validación = validation

válido = valid

valles y picos adaptativos = adaptive peaks and valleys

variable continua = continuous variable

vertebrado = vertebrate

vespertino = vespertine

vía = pathway

viento alisio = trade wind

viente antialisio = anti trade wind

vitalidad = vitality

vórtice = eddy, gyre

vórtice central = central gyre

## **X, Y**

xenogénico = xenogenous

xérico = xeric

## **Z**

zona adaptativa = adaptive zone

zona afótica = aphotic zone

zona batial = bathyal zone

zona costera = coastal zone

zona de baja presión ecuatorial = equatorial trough

zona de calmas ecuatoriales = doldrums

zona de conjunto = assemblage zone

Zona de Convergencia Intertropical = Intertropical Convergence Zone (ITCZ)

zona de hibridación = hybrid belt (zone)

zona de mareas = tidal zone

zona de trancisión = transition zone

zona disfótica = dysphotic (dysphotic) zone

zona eufótica = euphotic zone

zona eulitoral = eulittoral zone

zona fótica = photic zone

zona hadal = hadal zone

zona intermareal = intertidal zone

zona intertidal = intertidal zone

zona limnética = limnetic zone

zona sublitoral = sublittoral zone

zona supralitoral = supralittoral zone

zona ultraabisal = ultra-abyssal zone

zona, área = realm

zonación = zonation

zoobentos = zoobenthos

zoogeografía = zoogeography

zooplankton = zooplankton

zooxantelas = zooxanthellae