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 (preceeding) 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).
Glossary of biogeographic terms

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
abisobéntico
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
acclimatación
Response of an animal that enables it to tolerate a change in a single factor in its environment (eg temperature). (cf acclimitization).
acclimatization
aclimatación transitoria
A reversible adaptive response that enables an organism to tolerate environmental change (e.g. 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 (e.g. 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 (e.g. 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.

admissable
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
clas 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 lx.

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 mx.

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.
glossary of biogeographic terms

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

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.
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, O₂. 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.
Glossary of biogeographic terms

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 Artico
Smallest and shallowest (mean depth = 1,205 m) of the world's five main ocean basins. Area = 14,090,000 km². 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 km². 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 apomorphic (*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 procaryotes, 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).

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**B**

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

**bacterioplankton**  
**bacterioplancton**  
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**  
**baroclínico**  
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
béntico, 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 homoiothermic 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: interoparous 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.

bianantitropical
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
limite 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):
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)

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 rythm (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).
Glossary of biogeographic terms

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 límite
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 anagenesis, 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 \(I_B = \frac{a}{(a+b)}, b = c\). This index is now largely replaced in usage by such forms as the Czekanowski-Dice-Sorensen Index \(I_{c-d-s} = \frac{2a}{[(a+b)+(a+c)]}\). \(a = \) 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)

**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**
**carácter**
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 carácter**
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 carácter**
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 carácter**
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
cladogénesis
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.

coa-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.

course-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).

costal plain 
planicie costera 
A relatively flat land area adjacent to the sea.

costal upwelling 
afloramiento costero 
Upwelling (qv) of subsurface waters impingent upon or nearby a coast; upwelling inshore of the shelf break.

costal waters 
aguas costeras 
Ocean waters nearshore; the ocean region covering the continental shelves (cf neritic).

costal 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 sympaty, syntopic).

-coulous
Suffix, meaning "to inhabit", eg cavernicoulous, monticoulous, piscicoulous, etc.
crenium
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
crisis
See camouflage.

cryptic species
especie criptica
Sibling species \(qv\); sometimes termed hidden species.

cultural eutrophication
eutroficación 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. 
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
detritos
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**
*dimíctico*
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 under-representation 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 disphotic.

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 (eecesis)
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**  
*ecotono*  
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° 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 \frac{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 m sec\(^{-1}\) at 45° 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).

emersed 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, precinetic, 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).

epibiotia
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.

epicylysile
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 hypoliminion (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.

epipelic  
epipélico
Growing on mud.

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

epitokous
Reproductive; having or producing offspring.

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

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

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

equatorial trough
See Intertropical Convergence Zone.

equilibrium hypothesis
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
Ecology: A measure of the proportional evenness of occurrence of individuals among all component species of a community. Mathematically: $E = \frac{H_{obs}}{H_{max}}$, where $H'$ is the Shannon-Wiener information theory index of diversity, $H_{obs}$ is the value observed, and $H_{max}$ 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).

eury -
euri-
Prefix, meaning wide.

euryhaline
eurihalino
Organisms with a broad range of tolerated salinities.

eurythermal
euritérmico
Organisms with tolerance to a wide temperature range.

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

expatriation
expatriación
Export of members of a population to an area(s) in which continuous immigration is required to sustain the population (cf allogenic plankton, waifs).
**exponential growth**
exponencial crecimiento
A model of population growth explicitly stated as \( \frac{dN}{dt} = rN \) 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.

**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**
limite 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).

fluvatile
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 or 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 depensatory 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.

halodrymium
manglar
A mangrove (mangal) community.

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

halophyte
halofílico
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 (qv) 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.
**Glossary of biogeographic terms**

**hemi plankton**
**hemi plancton**
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 procaryotes) (*cf* carnivore, detritivore, 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**
**heterógra do**
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.

**hidro plankton**
**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
holobéntico, 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
holofiléctico
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
homoiosmóctico
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.

homoiotherm (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**  
**homocedasía**  
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 hidrarca**
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**  
*hiperbéntico*  
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).
hypoilimnion
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).

ICBN (International Code of Botanical Nomenclature)
(CINB) Código Internacional de Nomenclatura Botánica

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

-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).
Glossary of biogeographic terms

-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 Indico
Third largest of the main oceans of the world. Area = 73,443,000 km². 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).

infraflittoral
infraflitoral
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**

**estadio**
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.

**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**
isoluma
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).

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

**isoosmotic (isosmotic)**
isosmóntico
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).

kollaplanckton
Plankton (qv) rendered buoyant by encasement in gelatinous envelopes; also spelled collaplanckton.

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.
**Glossary of biogeographic terms**

**lectotype**
*T*axonomy: 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, *eg* 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 interactions between life *(qv)* cycles and environments that allow the individual (and therefore the species) to survive and reproduce.

**limicolous**
*límicola*
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 \( \frac{dN}{dt} = rN \frac{(K-N)}{K} \) 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 \( \frac{dN}{dt}=0 \).

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
lútico
Inhabiting mud.

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
macrofitas
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
meromíctico
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).

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

mesic
See xeric.
mesopelagic
termino: mesoperlagic
(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
termino: mesoplancton
Plankton (qv) with maximum dimension on the order of 0.2 - 20.0 mm

mesoscale eddy
termino: 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
term: mesoescalar
Periodic variation on the order of weeks to months and/or tens to a few hundreds of kilometers (cf macroscale feature).

metapopulation
See 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
term: 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
See microevolución
Evolutionary change within species (as opposed to macroevolution, the origin of higher taxa), may involve anagenesis (qv) or cladogenesis (qv).

microhabitat
See microhabitat
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, e.g. 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, e.g. 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, e.g. 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, e.g. 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 (mesosphenic), 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.
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
morfolítipo
(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 cuandratura**
Lower than average tides (*qv*) associated with quadrature (*qv*) of sun and moon.
nearshore
costeño, 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).

nektom
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 compromise 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 H₀.

**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.

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).

opportunistc species
especie oportunista
Fugitive species (qv).

-opysida
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
ortógenésis
(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).

overturn
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 $^{18}$O$_2$ to $^{16}$O$_2$, used to estimate temperatures that existed at particular periods in earth history, e.g. from the ratio of these isotopes in fossil marine shells (from the oxygen in the CaCO$_3$). Enhancement of $^{18}$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 ($179.7 \times 10^6$ km$^2$). It is also (on average) the coldest ($3.36^\circ$ 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*).

panchestron
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 descendents 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 benefitting (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
clupéido 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
periodo 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
fotoperiódico
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**  
*árbo 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*  
(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
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
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 æsthenosphere. 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
poiquilosmóctico
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 conformed.

poikilotherm (ectotherm)
poiquilotérmico
Organism that regulates body temperature by behavioral means only, if at all. In the vernacular termed "cold-blooded" (cf. homoiotherm).

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.

polyplody
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
politético
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 monotopic, 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 ($l_x$) 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.

preocial
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/m²/day or g-C/m²/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 <= p <= 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.

protocooperation
protocooperación
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.

tseudo -
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
cualitativo
Descriptive, non-numerical.

quantitativo
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
Glossary of biogeographic terms

**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**
**círculo 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 procaryotes; 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.

rifthrous (rithron)
rithron
Pertaining to the upper reaches of a stream or river.

rhoiüm
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, e.g. 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/m³.

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
sucsesión 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 tardio
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 talúd
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\(^2\)), 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**
**estereotaxis**
See thigmotaxis.

**stimulus**
**estimulo**
(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.
The glossary provides definitions for various biogeographic terms:

**subarctic**
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**
The neritic coastal zone extending from immediately below the littoral (qv) to the shelf break.

**submergence**
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.

**subpolar**
Oceanic zone where surface temperatures exhibit an annual excursion between (about) 5 - 15°C.

**subspecies**
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**
(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).

**subsurface intrusion**
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.
One of the seven major patterns of wind-driven 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**
**suprabéntico**
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.

**supraelos**
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 (e.g., 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 [e.g., 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. allopatry).

symplesiomorphy
simplesiomorfía
The sharing of "ancestral character states" (qv) by different but "coordinate taxa" (qv).

synapomorphy
sinapomorfia
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).

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**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  
estratifacción térmica  
Oceanography: The layering or vertical division of the water column based on temperature differences.

thermium  
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 homoiotherm.

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 marea
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
tipótesis 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.

tihipic
Pertaining to ponds.

tolerance
tolerancia
Ecology: The ability of an organism to function in suboptimal environmental conditions.

tolerance polygon
toligono 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.

torrenticoulous
detorrente
Living in river torrents.

totipotency	otipotente
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 (eg 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 transición
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 $10^6$ m³ 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
t 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
tubicola
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).

tycho-pelagic
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).
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 ultraabiscal
Hadal zone (qv)

ultra-abyssopelagic
ultraabipelágico
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).
Glossary of biogeographic terms

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 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 allogenic 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 Lompok) 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
**Glossary of biogeographic terms**

**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**
**zooplancton**
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
abisobentico = abyssobenthic
abisobentico = abyssobenthic
abundancia = abundance
acclimatacion = Acclimation
acclimatacion transitoria = acclimatization
acomodacion biologica = biological accommodation
adaptacion = adaptation
adecuacion = fitness
adnato = adnate
adveccion = advection
afloramiento = upwelling
afloramiento costero = coastal upwelling
agregacion = aggregation
agregacion = patchiness
agregado = aggregated
agregados = aggregates
agua central = central water
agua de talud = Slope Water
aguas calidas vs aguas frias = cold-water vs warm-water
aguas costeras = coastal waters
aguas dulces = freshwater
aguas salobres = brackish waters
aislamiento = isolation
aislamiento geografico = geographic isolation
al azar = random
albedo = albedo
albufera = lagoon
aleatorio = random
alelopatica = allelopathy
alelos = alleles
algoritmo = algorithm
alimentacion no selectiva = fine-grain exploitation
alocorico = allochoric
alactono = allochthonous
alactono = endemic
alometria = allometry
aloatrina = allopatria
alotipo = allotype
alomoricico = allomorphic
alomica = allozyme
altrical = altricial
ambiente = environment
ambito = ambit
amensalismo = amensalism
amictico = amictic
amplitud del nicho = niche breadth
amplitud ecológica = ecological amplitude
anádromo = anadromous
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análog
batimetría = bathymetry
batipelágico = bathypelagic
béntico = benthic
bentónico = benthic
bentopelágico = benthopelagic
bentos = benthos
bioacústica = bioacoustics
biocenosis = biocoenosis
bioestratigrafía = biostratigraphy
biogénesis = biogenesis
biogénesis = biogenesis
biogénesis = biogenesis
biogénesis = biogenesis
biogénesis = biogenesis
biología marina = marine biology
biología pesquera = fisheries biology
biología poblacional = population biology
bioluminisencia = 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
bradicálico = 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 nefelóide = nepheloid layer
capa superficial = surface layer
capacidad de carga = carrying capacity
capa de Ekman = Ekman layer
carácter = character
carácter = trait
carácter dicotómico = dichotomous character
carácter 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
ciclónico = 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
círculo de razas = Rassenkreis
cladística = cladistics
clado = clade
cladogénesis = cladogenesis
cladograma = cladogram
cladograma de área = area cladogram
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
clupéido 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 = hydatophytium
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 geoestrófica = 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
crioplancton = cryoplankton
cripsis = crypsis, camouflage
cuadrado = quadrat
cuadratura = quadrature
cualitativo = qualitative
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 = torrenticoulous
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 caracter = character displacement
detritívoro = detritovore, 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
dimáticico = dimictic
dinámica = dynamics
disfótico = dysphotic
dispersión = dispersal
dispersión = dispersion
distancia = distance
distancia cladística = cladistic distance
Glossary of biogeographic terms

distancia fenética = phenetic distance
distancia patrítica = patristic distance
distribución = distribution
distribución binomial negativa = negative binomial distribution
distribución contagiosa = contagious distribution, patchiness
distribución en banda = ribbon distribution
distribución relictual = relicual 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
ecológía = ecology
ecológia de sistemas = systems ecology
ecológia fisiológica = physiological ecology
ecológia marina = marine ecology
ecológia poblacional = population ecology
ecosistema = ecosystem
ecotipo = ecotype
ecotono = ecotone
ecotérmico = 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
emitación = emigration
enanismo = dwarfism
endemismo = endemism
endobéntico = endobenthic
endolítico = endolithic
endotérmico = endotherm
enriquecimiento = enrichment
entrada = inlet
epibéntico = epibenthic
epífítico = epiphyte
epílimnio = epilimnion
epipelágico = epipelagic
epipelíco = 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 punctuado = punctuated equilibria
equitabilidad = equitability
errante = vagile
escala = scale
escala de Beaufort = Beaufort Scale
especiación = speciation
especiación alocrónica = allochronic speciation
especiación alopátrica = allopatric speciation
especiación centrifuga = 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 criptica = 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
estadio = instar
estadística = statistic
estadística no paramétrica = nonparametric statistic
estadística paramétrica = parametric statistic
estado de caracter = character state
estado de carácter ancestral = ancestral character state
estado seral = seral stage
estática = statics
estenofagia = stenophagy
estenohalino = stenohaline
estenotérmico = stenothermal
estenotípico = stenotopic
estéreotaxis = stereotaxis
estímulo = stimulus
estival tardío = serotinal
estoa = 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 = ecronic
estuario = estuary
estuario negativo = negative estuary
estuario neutral = neutral estuary
estuario positivo = positive estuary
estudio = survey
euri- = eury -
eurihalino = euryhaline
Glossary of biogeographic terms

euritérmico = eurythermal
euritópico = 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
exclusión = exclusion
existencia = 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
fitotelmico = 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
graduaismo filético = phyletic gradualism
gremio = guild
Glossary of biogeographic terms

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
hibridación introgresiva = introgressive hybridization
hibrido = hybrid
hidrobios = hydric
hidrocórico = hydrochoric
hidrófita = hydrophyte
hidrografía = hydrography
hidrología = hydrology
hidroplankton = hidroplancton
hidrotaxis = hydrotaxis
hidrotectónica = hydrotectonics
hiperbéntico = hyperbenthic
hiperosmótico = hyperosmotic
hipersalino = hypersaline
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
holobéntico = holobenthic
holobentónico = holobenthic
holofilético = holophyletic
holofítico = holophytic
holopláncton = holoplankton
holotipo = holotype
holozoico = holozoic
homeotermo (endotermo) = homiotherm (endotherm)
homocedasia = homoscedasticity
homoiosmólico = homoiosmotic
homología = homology
homólogo = homologous
homónimo = homonym
homoplásia = homoplasy
horotelico = horotelic
huésped = host
hundimiento (de masa de agua) = downwelling
hurgando = browsing

I
ictiología = ichthyology
ictioplancton = ichthyoplankton
iliófago = limivorous
iliófago = limophagous
índice de afinidad = affinity index
índice de diversidad = diversity index
indígena = indigenous
infra = 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 = irruption
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
Glossary of biogeographic terms

**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
limicola = limicolous
limite biogeográfico = biogeographic boundary
limite de la masa de agua = water-mass boundary
limite faunístico = faunal boundary
limnobios = limnium
limnodio = limnodium
limnología = limnology
litoral = littoral
localidad tipo = type-locality
longevidad = longevity
lótico = fluviatile
lótico = lotic
luminiscencia = luminescence
lutícola = luticolous

**M**
macroescala = macroscale feature
macroevolución = macroevolution
macrófita = macrophyte
macronutriente = macronutrient
macroorganismos = macroorganisms
macroplancton = macroplankton
macrozooplancton = 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 sicigia = spring tide
marea roja = red tide
marea semi-diurna = semidiurnal tide
mareas de cuandratura = neap tides
mareas de perígeo = 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
meromícico = meromictic
meropelágico = meropelagic
meroplancton = meroplankton
mesoescala = mesoscale feature
mesopelágico = mesopelagic
mesoplancton = 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)
mobilitad = 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 = monotetic
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
Glossary of biogeographic terms

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 Pacífico = 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
Glossary of biogeographic terms

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
parapatría = 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
pelon = dyticon
penetrancia = penetrance
perifiton = AUFWUCHS
perifiton = periphyton
periodicidad = periodicity
periodo fenocrítico = phenocritical period
perturbación = perturbation
pésimo = pessimal
pesticida = pesticide
picnoclina = pycnocline
picoplancton = picoplankton
pionero = pioneer
pirámide = pyramids
pirámide ecológica (de Elton) = ecological (Eltonian) pyramid
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pirámide invertida = inverted pyramid
plaga = pest
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 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
polimictico = polymictic
polimorfismo = polymorphism
polimorfismo balanceado = balanced polymorphism
polimorfismo génico = genetic polymorphism
polinya = polynya
poliploidía = polyplody
político = polythetic
politipia = polytypy
polítópico = polytopic
pontico = pontic
portador de nombre = onamotaphore
possible = prospective
potámico = potamous
potamódromo = potamodromous
potamoplancton = potamoplankton
potencial reproductivo = reproductive potential
potencial = prospective
predador = predator
preadaptación = preadaptation
precedencia = precedence
precoz = precocial
predación = predation
predador clave = keystone predator
presa = prey
presión hidrostática = hydrostatic pressure
primaveral = vernal
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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
pitolico = prolific
propiedad conservativa = conservative property
propiedad no conservativa = nonconservative property
protandria = protandry
protocooperación = protocooperation
protoginia = protogyny
provincia = province
provincia biogeográfica = biogeographical province
provincia faunística = faunal province
provincialismo = provincialism
psammon = dyticon
pseudo-oceánico = pseudo-oceanic
psudopelágico = pseudopelagic
psudoplancton = pseudoplankton
psudovicariantes = pseudovicars
puerta hidrográfica = hydrographic gate

Q
quantum evolutivo = quantum evolution
quiescente = quiescent
quimioheterótrofo = chemoheterotroph
quimiolitotrófico = chemolithotroph
quimiotrófico = chemotrophic
quimiotaxis = 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
reducido = 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
región 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
reologia = rheology
reotaxis = rheotaxis
reservorio = sink
resiliencia = resilience
resistencia ambiental = environmental resistance
respuesta funcional = functional response
respuesta numérica = numerical response
R-estratega = R-strategist
ría = firth
ripario = riparian
riqueza específica = species richness
ritmo biológico = biological rhythm (rhythm)
ritmo circadiano = circadian rhythm (rhythm)
ritmo endógeno = endogenous rhythm (rhythm)
ritmo exógeno = exogenous rhythms (rhythms)
ritron = rhithron
ritron = rhithrous (rhithron)
rufo = eddy
ruta = pathway

S
salinidad = salinity
saltación (evolución saltatoria) only applies to evolution in Spanish = saltation (has more meanings in English)
saproplancton = saproplankton
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
semelparidad = 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
símbiosis = symbiosis
simpatria = sympatry
simpático 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
sistemática = systematics
sistemática 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 hidrárca = hydrarch succession
sucesión primaria = primary succession
sucesión secundaria = secondary succession
superespecie = superspecies
superposición de nichos = niche overlap
suprabéntico = suprabenthic
sustancia mucosa = mucose substance
sustrato = substrate
sustrato = substratum
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T

taxonomía = taphonomy
talásico = thalassic
talasódromo = oceanodromous
talud continental = continental slope
tanatocenosis = thanatoconosis
taquítélico = 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

téoría de aprovisionamiento óptimo = optimal foraging theory
téoría 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 = toptype
torbellino de mesoscalea = 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
tubicola = tubiculous
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
viento 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 bathyal = 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 = disphotic (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
zooplancton = zooplankton
zooxantelas = zooxanthellae