Glossary

Algae Algae are polyphyletic group of simple, oxygenic photosynthetic organisms that have chlorophyll as their main photosynthetic pigment and lack sterile covering of cells around the reproductive cells.

Algal bloom Dense population of planktonic algae or cyanobacteria that distinctly colours the water and may form scum on the surface.

Algal trophic index Quantitative expression of algal species counts, providing a measure of the trophic (nutrient) status of the aquatic environment.

Allochthonous Materials (usually organic) produced within a water body.

Apochlorotic Colourless or without chlorophyll.

Autotroph Organism capable of synthesizing organic matter by means of photosynthesis.

Bathyal zone Ocean water over continental slope.

Biofilm Community of microorganisms occurring at a physical (e.g. water/solid) interface that is typically present within a layer of extracellular polysaccharide that is secreted by the community.

Bioluminescence Emission of light by a living organism.

Biovolume Volume of single algae and algal populations in a particular population. It may be measured either for a single genus or for a mixed population (volume of individual taxa should be measured).

Brackish Saline water with a salinity less than that of seawater (33 $0/_{00}$).

Calcification Deposition of calcium carbonate, usually in association with smaller amounts of other carbonate.

Carotenoid Yellow, orange or red hydrocarbon or fat-soluble pigment.

Chlorophyll Fat-soluble, green, porphyrin-type pigment.

Chloroplast Plastid with chlorophyll.

Chloroplast endoplasmic reticulum or chloroplast ER One or two membranes surrounding the chloroplast envelope; ribosomes are usually attached to the outside of the outer membrane.

Chromatic adaptation Change in the proportion of different photosynthetic pigments enabling optimum absorption of the available wavelengths of light.

Circadian rhythm Repeated sequence of metabolic activities that occur at about 24 h intervals.

Coccoid Spherical structure.

Coccolith Calcified scale in a coccolithophorid (Prymnesiophyceae).

Coenobium Spherical colony of algal cells with central hollow and number that is fixed at the time of origin and is not subsequently augmented.

Compensation depth Depth of water at which sufficient light is penetrated so that photosynthesis equals respiration over a 24 h period.

Compensation point Particular light intensity at which respiration equals photosynthesis over a 24 h period of a specific area.

Coralline Calcified algae.

Cryptomonads Group of unicellular motile eukaryote algae of the division Cryptophyta.

Cyanelle Endosymbiotic blue-green alga that gave rise to chloroplast.

Cyanome Host cell containing a cyanelle that gave rise to eukaryotic algae.

Cyanophage Virus that infects the cells of the Cyanophyceae.

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Cyanophycin granule Polypeptide storage granules within the cells of Cyanophyceae.

Diatom indices Use of diatom species counts to assess the trophic status of a water body.

Dystrophic Brown or yellow coloured waters rich in organic matter where the rate of decay of that organic matter is slow having a low pH.

Ecosystem Self-regulating biological community living in a defined habitat.

Environmental stress factor External change that impairs biological function at the level of individual organisms and molecular systems of an ecosystem.

Epilithic Organisms living on rock surfaces.

Epipelic Organisms growing on mud.

Epiphyte One plant living on other plant.

Epontic Organisms living on the bottom of ice.

Estuary The junction of a river and ocean where tidal effects are evident and where freshwater and seawater mix.

Euphotic or photic zone Regions of water body above the compensation depth.

Eurysaline (euryhaline) Organisms tolerant of a wide salinity range.

Eutrophic A body of water that receives large amounts of nutrients, usually resulting in a large growth of algae.

Eutrophication An increase in the concentration of soluble inorganic nutrients such as phosphates and nitrates in aquatic ecosystem.

Gas vacuole Gas-filled vacuum found in some aquatic blue-green algae and bacteria that increases buoyancy. It is composed of gas vesicles which are made of protein.

Habitat The living place of an organism or community, characterized by its physicochemical and biotic properties.

Holoplanktonic Aquatic organisms which are present in the water column over most of the annual cycle.

Hydrology All aspects of water flow connected with an aquatic system, including inflow and outflow of water.

Hypertrophic Water body with extremely high levels of dissolved inorganic nutrients, also called hypereutrophic.

Hypolimnion Region of water body beneath the thermocline in thermally stratified water bodies with low light intensity.

Intertidal Occurring between the low and high tide marks.

Iridescence The play of colours caused by refraction and interference of light waves at the surface.

K-selected species (K-strategist) Organisms adapted to high levels of competition in a crowded environment where they survive, grow and reproduce.

Lentic Related to a pond or lake habitat.

Limnology Study of aquatic systems in relation to physicochemical and biotic factors.

Littoral zone Peripheral shoreline at the edge of lakes and rivers.

Lotic Related to rivers or stream habitat.

Macroplankton Planktons larger than 75 μm in diameter. Also called net plankton.

Meroplanktonic Algae with only a limited planktonic existence in the water column. Most of the annual cycle is spent on sediments as a resting stage.

Mesotrophic Water body with moderate levels of inorganic nutrients and moderate primary productivity – intermediate state between oligotrophic and eutrophic condition.

Microplankton Unicellular and multicellular planktonic organisms in the size range of 20–200 μm.

Mixotrophy Organisms having the ability to combine both autotrophic (using inorganic carbon sources) and heterotrophic (organic carbon sources including phagotrophy) nutrition.

Nannoplankton or nanoplankton Plankton smaller than 75 μm but larger than 2 μm.

Nephelometer Submerged instrument used to measure the particulate concentration (turbidity) of water by collecting light scattering from suspended matter.

Oligotrophic Water body with less dissolved inorganic nutrients (particularly nitrogen and phosphorous) resulting in low levels of biological productivity.

Organotroph (osmotrophy, saprotrophy) Organisms that either use reduced organic compounds as its sources of electrons or carry out organotrophy.

Pelagic All organisms normally present in the water column of water bodies like plankton and nekton.

Pelagic zone The central main part of a lake.

Periphyton Plantlike organisms present in a community mainly on underwater substrata – including algae, bacteria and fungi.

Photic zone Upper part of water column on aquatic ecosystem in which net photosynthesis can occur (also known as the euphotic zone).

Phototroph Organisms that use solar energy to fix inorganic carbon to organic compounds by photosynthesis.

Phragmoplast Wall formation by the coalescence of Golgi vesicles between spindle microtubules.

Phytoplankton Free-floating plants that float aimlessly or swim too feebly to maintain a constant position against water current.

Picoplankton Plankton with a diameter of 0.2–2 μm.

Plankton Organisms that float aimlessly or swim too feebly to maintain a constant position against water current.

Plankton sedimentation Gravitational force-induced sinking of nonmotile plankton in the water column.

Primary production Synthesis of biomass by photosynthetic organisms – higher plants, algae and photosynthetic bacteria.

Productivity The rate of increase in biomass (growth rate) in a population of organism. Can be expressed as $mgC/m^2/day$.

r-selected species (r-strategist) Organism adapted to an uncrowded environment, with low competition.

Saline lakes Lakes with highly concentrated salts often resulting in white salt 'crusts' round their margins where evaporation from the surface greatly exceeds the inputs.

Saprobic pollution High concentration of soluble organic nutrients.

Secchi depth A particular depth of a water column at which a suspended sectored plate (Secchi disc) can no longer just be seen indicating the measure of water turbidity and phytoplankton biomass.

Sedgwick rafter cell counter A grooved slide with counting chamber commonly used for phytoplankton samples.

Stratification Vertical structuring of static or very slow moving water bodies into three distinct layers – epilimnion, metalimnion and hypolimnion. Determined by temperature and circulatory differences with the water column.

Sublittoral zone In the freshwater region, the zone from the end of rooted vegetation (about 6 m) to the compensation depth and in the marine ecosystem the zone from the lowest low tide mark to 200 m depth.

Succession Temporal sequence of organism that occurs in a developing community such as biofilm or lake pelagic community.

Supralittoral zone In marine ecosystem the zone above the high tide mark in the ocean and in freshwater region above the standing water mark, which receives splash during windy periods.

Trophic The term 'trophic' is used to describe the inorganic nutrient status of different water bodies (oligotrophic to eutrophic) and the feeding relationships (trophic interactions) of freshwater biota.

Turbidity Opacity of water caused by suspended particulate matter used as measure of phytoplankton biomass.

Tychoplankton Organisms circumstantially carried into the plankton often from plant or rock surfaces. Also referred to as 'accidental plankton' or 'pseudoplankton'.

Water bloom See algal bloom.

Zooplankton Assemblage of invertebrate planktonic organism.

Bibliography

Alley, R. B. (2007). Wally was right; predictive, ability of the North Atlantic "Conveyer Belt" hypothesis for abrupt climate change. *Annual Reviews of Earth and Planetary Science, 35*, 241–272.

Falkowski, P. G., & Kolber, Z. (1995). Variations in chlorophyll fluorescence yields in phytoplankton in the world oceans. *Australian Journal of Plant Physiology, 22*(2), 341–355.

Hecky, R. E. (1998). Low N: P ratios and the nitrogen fix: Why watershed nitrogen removal will not improve the Baltic. In *Effects of nitrogen in the aquatic environment* (KVA Report 1998: 1, 85–115 pp). Stockholm: Kungl Vetenskapsakademien [Royal Swedish Academy of Science].

Jeffrey, S. W., & Vesk, M. (1997). Introduction to marine phytoplankton and their pigment signatures. In S. W. Jeffrey, R. F. C. Mantoura, & S. W. Wright (Eds.), *Phytoplankton pigments in oceanography: guidelines to modern methods* (pp. 37–84). Paris: UNESCO Publishing.

Lewitus, A. J., et al. (1995). Discovery of the "Phantom" dinoflagellate in Chesapeake Bay. *Estuaries, 18*(2), 373–378.

Moss, B. (1968). The chlorophyll a content of some benthic algal communities. *Archives of Hydrobiology, 65*, 51–62.

Steeman-Nielsen, E. (1952). The use of radioactive carbon (^{14}C) for measuring organic production in the sea. *Journal du Conseil/Conseil Permanent International pour l'Exploration de la Mer, 18*, 117–140.

Weckström, K., & Juggins, S. (2005). Coastal diatom-environment relationships from the Gulf of Finland, Baltic Sea. *Journal of Phycology, 42*, 21–35.

Whitten, B. (1970). Biology of Cladophora in freshwaters. *Water Research, 4*, 457–476.

Willen, E. (1991). Planktonic diatoms – An ecological review. *Algological Studies, 62*(Suppl), 69–106.

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