

Glossary

A Aphotic zone: dark region of the ocean that lies below the surface sunlit waters

Assimilation: The conversion of nutrients into living tissue; constructive metabolism.

B Biomass: the total weight of living organisms

Bloom: a rapid increase in the population of algae in an aquatic system, either freshwater or saltwater. A bloom can occur from microscopic or macroscopic algae.

Buoyancy: the ability of an object to float in a fluid by displacement of a volume of fluid equal in mass to the mass of the floating object

C Carbon cycle: The circulation of carbon atoms through the earth's whole ecosystem.

Carbon dioxide: A gas which is colorless and odorless; when dissolved in water it becomes carbonic acid; CO₂ is assimilated by plants for photosynthesis in the "dark" cycles of photosynthesis.

Chlorophyll: Any of several green pigments found in photosynthetic organisms, such as plants, algae, and cyanobacteria. Chlorophyll absorbs red and blue wavelengths of light, but reflects green. Plants rely on two forms of chlorophyll, chlorophyll a (C₆₆H₇₂MgN₄O₅) and chlorophyll b (C₆₆H₇₀MgN₄O₆), which have slightly different light absorbing properties.

Chlorophyll a: A type of chlorophyll that is most common and predominant in all oxygen-evolving photosynthetic organisms such as higher plants, red and green algae. It is best at absorbing wavelength in the 400-450 nm and 650-700 nm of the electromagnetic spectrum. Its molecular formula is C₅₅H₇₂O₅N₄Mg.

Community: an assemblage of interacting populations in an area or habitat.

Cyanobacteria: a phylum of bacteria that obtain their energy through photosynthesis. They are found both in marine and freshwater systems and are an important component of the nitrogen cycle. They are NOT algae, as the misnomer "blue-green algae" would imply.

D Density: quantity of things per unit measure (especially area or volume)

Diatom: any of various microscopic protists of the phylum Bacillariophyta that live in both fresh and marine water, have hard bivalve shells (called frustules) composed mostly of silica, and often live in colonies. Most diatoms can perform photosynthesis. They make up a large portion of the marine plankton and are an important food source for many aquatic animals. The skeletal remains of diatoms are the main constituent of diatomite.

Dinoflagellate: any of numerous one-celled organisms found mostly in the ocean, usually having two flagella of unequal length and often an armorlike covering of

Glossary

cellulose. Dinoflagellates are one of the main components of plankton. Since dinoflagellates have characteristics of both plants and animals, their classification is controversial.

Diurnal vertical migration: ascent of some zooplankton and nekton to the surface during nighttime and descent out of the sunlit surface water during daytime

Diversity: the total number of species inhabiting a particular environment

E Ecosystem: a community and its abiotic environment.

Ecosystem Functions/Ecosystem Services: all the processes through which natural ecosystems and the species they contain help sustain human life on earth.

Epipelagic zone: ocean depths between the surface and approximately 200 meters

Euphotic zone: The well-lit surface layer of the ocean where plants photosynthesize; also called the photic zone

Eutrophication: a process whereby a body of water (such as a lake or estuary) or slow-moving stream receives an excess amount of nutrients that stimulate excessive plant growth (i.e. algae). These resultant algal blooms reduce dissolved oxygen in the water when the dead plant material decomposes and can cause other organisms to die. These nutrients can come from a number of sources, such as fertilizers, erosion of soil containing nutrients, and sewage treatment plant discharges.

H HABs (Harmful Algal Blooms): a rapid and large increase in the population of (usually) one species of phytoplankton or cyanobacteria that is already present in the community that causes harm in one or more ways. Harm from a harmful algal bloom can be physical, biological or economic. Depletion of oxygen concentration in the water and creation of toxins (often a neurotoxin) by the organism in bloom are just two ways HABs cause harm. HABs can occur in fresh or salt water. The algae that can cause a HAB can be microscopic or macroscopic. HABs do not always change the color of the water and thus are not always visible to the naked eye (and this is one of the reasons that 'red tide' is not a good alternative for the term 'harmful algal bloom').

M Macroalgae: algae which can be seen without using a microscope; sometimes referred to as seaweeds.

Midwater: ocean depths between 500 and 2,000 meters below the sea surface

N Nitrogen cycle: the continuous sequence of events by which atmospheric nitrogen and nitrogenous compounds in the soil are converted, as by nitrification and nitrogen fixation, into substances that can be utilized by green plants, the substances returning to the air and soil as a result of the decay of the plants and denitrification.

Glossary

Nitrogen fixation: any process of combining atmospheric nitrogen with other elements, either by chemical means or by bacterial action: used chiefly in the preparation of fertilizers, industrial products, etc.

Nutrients: food or chemicals that an organism needs in order to live and grow; a substance used in an organism's metabolism which must be taken in from its environment.

O Oxygen minimum zone: A layer of water between the depths of 500 and 1,000 m in which dissolved oxygen concentrations are lower than in the water above or below

P Pelagic: referring to the water column away from the bottom, sometimes also referred to as open ocean

Phytoplankton: the autotrophic component of the plankton community.

Plankton: any of the drifting organisms that inhabit the pelagic zone of the ocean or fresh water.

Population: all the individuals of one species in a given area.

Positive feedback: in an ecosystem where the output or response affects the input in a way that results in the amplification, growth, or perpetuation of the output.

R Red tide: a population explosion of certain species of algae/protists that change the color of the water to various shades of red, orange, brown, green or other colors. This term is typically not used in scientific circles, but is often used in the vernacular in some regions instead of 'harmful algal bloom'. The two terms do not necessarily have the same definition (depending on who you ask), so this term can be confusing.

T Thermocline: A sharp, vertical temperature gradient that marks a contact zone between water masses having markedly different temperatures

Z Zooplankton: the aggregate of animal or animal-like organisms in plankton, as protozoans.