Sport Ecology Glossary

(updated 12/2020)

Air Quality
The degree to which the ambient air is clean and pollution-free. This can be measured by several indicators of air pollution, typically involving a count of how many parts per million (ppm) of a pollutant are in the air. Governments and organizations rely on air quality indices (AQI) that communicate air quality standards in a certain region. AQIs are used to communicate to the public how polluted the air currently is or how polluted it is forecast to become.

Air quality is a health consideration both indoors and outdoors, as pollutants that are not properly filtered through air circulation systems and filtration systems can cause indoor air to be poor.

Ambient Air
Ambient air is atmospheric air in its natural state, not contaminated by air-borne pollutants. Ambient air is typically 78% nitrogen and 21% oxygen. The extra 1% is made up of a combination of carbon, helium, methane, argon and hydrogen. The closer the air is to sea level, the higher the percentage of oxygen. Manufacturing processes and the burning of fossil fuels has directly impacted ambient air quality by releasing a high level of industrial and chemical pollutants into the atmosphere.

Anthropocentrism
Belief, perspective, and environmental ethical theory that humanity and human life is the most central and important entity. Human values and perspectives are used to assign value and meaning to all other forms of life and non-life in the world. Human needs fundamentally supersede the needs of all other non-human beings and objects. From an anthropocentric perspective, when the needs of a human lifeform and non-human lifeform are at odds, the human needs must win out. The natural environment's value is in its use as a means towards an end. Protection of the natural environment is provided only insofar as it provides a benefit to humanity.

Anthropocentrism is opposed to the perspective of ecocentrism.

Anthropocene
The current geological age which is defined by the influence of human activity upon the world. We are currently living in the anthropocene.

Carbon Accounting
Carbon accounting is the process by which organizations quantify their Greenhouse Gas (GHG) emissions, so that they may understand their climate impact and set goals to limit their emissions. In some organizations, this is also known as a carbon or greenhouse gas inventory.

Carbon Dioxide
A naturally occurring gas, and also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance.

CO2 the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1. See climate change and global warming.

Carbon Emissions
Polluting carbon substances released into the atmosphere. This includes carbon dioxide and carbon monoxide produced by motor vehicles and industrial processes that pollute the atmosphere.

Carbon Footprint
A carbon footprint is an estimate of how much carbon dioxide and carbon monoxide is produced to support a lifestyle, a business, an activity, or another unit of observation. Essentially, the carbon footprint measures the impact of a person or organization on the climate based on how much carbon dioxide is produced. Factors that contribute to carbon footprint include travel, production, consumption, energy use. Carbon footprints can also be applied on a larger scale, to companies, businesses, even countries.

Carbon Neutrality
The goal of achieving net-zero carbon emissions from human activities, which is achieved by balancing carbon-producing activities with those that remove carbon. There are two processes popularly utilized to achieve carbon neutrality: reduction or elimination of carbon-producing activities, and carbon offsetting.

Carbon Offsets
Carbon offsets work in a financial system where, instead of reducing its own carbon use, a company can comply with emissions caps by purchasing an offset from an independent organization. The organization will then use that money to fund a project that reduces carbon in the atmosphere. An individual can also engage with this system and similarly pay to offset his or her own personal carbon usage instead of, or in addition to, taking direct measures such as driving less or recycling.

Carbon offsets are most often used by companies or institutions to reduce their carbon footprint without actually polluting less. As such, these are a good solution, but should not be perceived as long-term or permanent solutions; instead, organizations must seek to reduce their carbon emissions.

As an example, a sport brand can pay to build a wind turbine off the coast or a solar field in their region. By using its money to create renewable energy, that company thereby offsets its own carbon use.

Climate

From the ancient Greek origins of the word (*klíma*, “an inclination or slope”—e.g., of the Sun’s rays; a latitude zone of Earth; a clime) and from its earliest usage in English, climate has been understood to mean the atmospheric conditions that prevail in a given region or zone. In the older form, *clime*, it was sometimes taken to include all aspects of the environment, including the natural vegetation. The best modern definitions of climate regard it as constituting the total experience of weather and atmospheric behaviour over a number of years in a given region. Climate is not just the “average weather” (an obsolete, and always inadequate, definition). It should include not only the average values of the climatic elements that prevail at different times but also their extreme ranges and variability and the frequency of various occurrences. Just as one year differs from another, decades and centuries are found to differ from one another by a smaller, but sometimes significant, amount. Climate is therefore time-dependent, and climatic values or indexes should not be quoted without specifying what years they refer to.

Climate Change

Climate change refers to any significant change in measures of climate (e.g. temperature, precipitation, wind) over an extended period (typically 3 decades or longer). Climate change may result from:

- natural factors, such as changes in the sun’s intensity or slow changes in the Earth’s orbit around the sun;
- natural processes within the climate system (e.g. changes in ocean circulation);
- human activities that change the atmosphere’s composition (e.g. through burning fossil fuels) and the land surface (e.g. deforestation, reforestation, urbanization, desertification, etc.)

Climate Communications

On the surface, climate change communication is about educating, informing, warning, persuading, and mobilizing. At a deeper level, climate change communication is shaped by our different experiences, mental and cultural models, and underlying values and worldviews. Individuals, communities, and societies come to understand, care, and act on climate change through their communication with other people. As an academic field, climate change communication scientists and scholars seek to understand these processes, develop and test scientific theories, and identify more effective communication strategies and tactics to address this critical challenge.

Composting

The controlled biological decomposition of organic material in the presence of air to form a humus-like material. Controlled methods of composting include mechanical mixing and aerating,

ventilating the materials by dropping them through a vertical series of aerated chambers, or placing the compost in piles out in the open air and mixing it or turning it periodically.

Deforestation
Those practices or processes that result in the conversion of forested lands for non-forest uses. This is often cited as one of the major causes of the enhanced greenhouse effect for two reasons: 1) the burning or decomposition of the wood releases carbon dioxide; and 2) trees that once removed carbon dioxide from the atmosphere in the process of photosynthesis are no longer present.

Ecocentrism
Belief, perspective, and environmental ethical theory that centers on the intrinsic value of nature. This is a nature-centered approach to understanding the world rather than a human-centered approach. Provides that the needs of nature must occasionally be able to supersede the needs of humans. Protection of the natural environment is necessary as non-human beings and objects have the right to life, self-determination, and existence.

Ecocentrism is opposed to the more prominent perspective of anthropocentrism.

Fair Trade
Crops produced according to principles in which poor farmers in developing countries receive fair prices for their products, workers enjoy safe working conditions and fair wages, communities receive development assistance and investment in social programs and crops are grown with sustainable farming methods and without the use of pesticides or genetically modified organisms. Products labeled as “Fair Trade Certified” are verified and audited by an independent certifier. Fair Trade Certification is currently available in the United States for coffee, tea and herbs, cocoa and chocolate, fresh fruit, sugar, rice and vanilla.

Flooding
Flooding is an overflowing of water onto land that is normally dry, or a significant raise in the water table below ground. Floods can be caused by several factors, or a combination of factors, including heavy rains, ocean waves coming ashore, snow melting quickly, or broken dams and levees. Floods can occur quickly (within minutes or hours) or over a long period, and may take several weeks to go down.

Floods are the most common and widespread of all natural disasters.

Fossil Fuels
Coal, crude oil, and natural gas are all considered fossil fuels because they were formed from the fossilized, buried remains of plants and animals that lived millions of years ago. Because of their origins, fossil fuels have a high carbon content. Unearthing, processing, and moving underground oil, gas, and coal deposits take an enormous toll on our landscapes and ecosystems. The fossil fuel industry leases vast stretches of land for infrastructure such as

wells, pipelines, access roads, as well as facilities for processing, waste storage, and waste disposal. In the case of strip mining, entire swaths of terrain—including forests and whole mountaintops—are scraped and blasted away to expose underground coal or oil. Even after operations cease, the nutrient-leached land will never return to what it once was.

As a result, critical wildlife habitat—land crucial for breeding and migration—ends up fragmented and destroyed. Even animals able to leave can end up suffering, as they're often forced into less-than-ideal habitat and must compete with existing wildlife for resources.

Geothermal Energy
Geothermal energy is electricity generated by harnessing hot water or steam from within the earth.

Global Warming
Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases from human activities. See climate change, greenhouse effect, enhanced greenhouse effect, radiative forcing, troposphere.

Gray Water
Domestic wastewater composed of wash water from kitchen, bathroom, and laundry sinks, tubs, and washers. This can also refer to wastewater from commercial enterprises such as wastewater from kitchen sinks, re-captured sprinkler water, water used to clean floors or surfaces, etc.

Greenhouse Effect
Trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase. See greenhouse gas, anthropogenic, climate, global warming.

Greenhouse Gas (GHG)
Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), ozone (O_3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Greenwashing

Greenwashing is a form of corporate misrepresentation where a company will present a green public image and publicize green initiatives that are false or misleading. A company might release misleading claims or even true green initiatives while privately engaging in environmentally damaging practices. Companies are trying to take advantage of the growing public concern and awareness for environmental issues by promoting an environmentally responsible image. Greenwashing can help companies win over investors (especially those interested in socially responsible investing), create competitive advantage in the marketplace, and convince critics that the company is well-intentioned. There is a profit-driven motive to greenwashing as well— green products are among the fastest growing segments in the market and present a huge potential for growth. The increase in green advertising claims has become a cause for concern at the Federal Trade Commission, who planned to begin re-evaluation of existing green marketing guidelines in 2008.

Heat-related illness
Heat-related illnesses occur when the body is exposed to heat at a faster rate than it can cool itself down. Heat-related illness is almost always preventable.

There are several manifestations and symptoms of heat-related illness including pale, cool, moist skin; heavy sweating; muscle cramps; rash; fatigue and weakness; dizziness and/or fainting, and many more. In severe cases, heat-related illness can lead to heat stroke, also known as sunstroke, which can be a life-threatening medical emergency. Importantly, the effects of heat are made worse if the body is dehydrated.

Heat Island Effect
The Heat Island Effect occurs when dark surfaces absorb the Sun's energy and re-radiate it throughout the day and night raising the ambient air temperature. (Think of a hot sidewalk or roadway, and how it remains hot into the evening hours and at night.) Because of this phenomenon, the annual mean air temperature of a city with 1 million people or more can be 1.8–5.4°F (1–3°C) warmer than its surroundings. In the evening, the difference can be as high as 22°F (12°C). Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality.

Intergovernmental Panel on Climate Change (IPCC)
The IPCC was established jointly by the United Nations Environment Programme and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. The IPCC draws upon hundreds of the world's expert scientists as authors and thousands as expert reviewers. Leading experts on climate change and environmental, social, and economic sciences from some 60 nations have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences, and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official

advisory body to the world's governments on the state of the science of the climate change issue. For example, the IPCC organized the development of internationally accepted methods for conducting national greenhouse gas emission inventories.

LED Lighting
Light-Emitting Diode (LED) lighting is currently the most efficient form of lighting available. LED lights have numerous advantages over traditional incandescent or compact fluorescent lamp (CFL) bulbs, which include: decreased energy consumption and longer lifespan.

LEED Certification
The Leadership in Energy and Environmental Design (LEED) certification is offered by the United States Green Building Council (USGBC) worldwide to buildings, both newly constructed and renovated, that achieve certain environmentally-friendly benchmarks for design, construction, operation, and maintenance.

Methane (CH4)
A hydrocarbon that is a greenhouse gas with a global warming potential most recently estimated at 23 times that of carbon dioxide (CO2). Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. The GWP is from the IPCC's Third Assessment Report (TAR). For more information visit EPA's Methane site.

Natural Gas
Underground deposits of gases consisting of 50 to 90 percent methane (CH4) and small amounts of heavier gaseous hydrocarbon compounds such as propane (C3H8) and butane (C4H10).

Organic
Certified Organic foods and farms cannot use most synthetic or petroleum derived pesticides and fertilizers, any irradiation, or sewage sludge. No genetic engineering is allowed. Organic farmers use crop rotation, tilling and natural fertilizers, such as compost.

Ozone (O3)
Ozone, the triatomic form of oxygen (O3), is a gaseous atmospheric constituent. In the troposphere, it is created both naturally and by photochemical reactions involving gases resulting from human activities (photochemical smog). In high concentrations, tropospheric ozone can be harmful to a wide range of living organisms. Tropospheric ozone acts as a greenhouse gas. In the stratosphere, ozone is created by the interaction between solar ultraviolet radiation and molecular oxygen (O2). Stratospheric ozone plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric ozone, due to chemical reactions that

may be enhanced by climate change, results in an increased ground-level flux of ultraviolet (UV-) B radiation. See atmosphere, ultraviolet radiation.

Ozone Layer
The layer of ozone that begins approximately 15 km above Earth and thins to an almost negligible amount at about 50 km, shields the Earth from harmful ultraviolet radiation from the sun. The highest natural concentration of ozone (approximately 10 parts per million by volume) occurs in the stratosphere at approximately 25 km above Earth. The stratospheric ozone concentration changes throughout the year as stratospheric circulation changes with the seasons. Natural events such as volcanoes and solar flares can produce changes in ozone concentration, but man-made changes are of the greatest concern.

Parts Per Million (ppm)
Number of parts of a chemical found in one million parts of a particular gas, liquid, or solid.

Pesticides
A pesticide is any substance used to kill, repel, or control certain forms of plant or animal life that are considered to be pests. Pesticides include herbicides for destroying weeds and other unwanted vegetation, insecticides for controlling a wide variety of insects, fungicides used to prevent the growth of molds and mildew, disinfectants for preventing the spread of bacteria, and compounds used to control mice and rats. Because of the widespread use of agricultural chemicals in food production, people are exposed to low levels of pesticide residues through their diets. People may also be exposed to pesticides used in a variety of settings including homes, schools, hospitals, and workplaces.

Phantom Load
A phantom load is the electricity consumed by an appliance or electrical device when it is not actively being used or is in the “off” mode. Although these devices, or “power vampires” appear to be off, they continue to draw electricity from outlets to keep their circuits instantly ready for the next time they are turned on. Electrical devices only consume a few watts when not in use, but throughout a day and over an entire year, a few watts can add up to almost 20% of a home’s power.

Recycling
The practice of collecting and reprocessing a raw resource so it can be used again. An example is collecting aluminum cans, melting them down, and using the raw aluminum to make new cans or other aluminum products (e.g. foil).

Reduce / Reduction
In a circular economy model, the coupled strategies of reducing consumption and reusing or recycling what is consumed are central to closing the loop. Reduction involves identifying products and services that are not necessary to the operations of an entity, and discontinuing consumption of those products and services. Alternatively, reduction can be accomplished by

repurposing materials that are already in use to reduce the need for new products and services. This tactic is also known as minimisation.

Reforestation
Planting forests on lands that previously contained forest but that were cut, cleared, and/or converted to another use.

Renewable Energy
The term renewable energy generally refers to electricity supplied from renewable sources, such as wind and solar power, geothermal, hydropower, and various forms of biomass. These energy sources are considered renewable sources because they are continuously replenished on the Earth.

Reuse
Reuse is when a product is used again in the same form and for the same purpose. It is one of the best ways to stop waste, and there are tons of opportunities to put it into practice every day.

Solar Panels
Solar panels are a type of photovoltaic (PV) system that collects energy from sunlight and converts it into usable energy for a building. Also called photovoltaic (PV) cells, solar panels typically contain no corrosive chemicals, do not pollute, require little maintenance, and operate silently from the roof of a building. During daylight hours, PV panels produce energy that is fed back into the electrical grid, sometimes causing the electric meter to run backward. At night, the building uses energy off the power lines as usual, but the building saves money in its utility bill from the energy produced during the day.

Solar panels come in a variety of sizes and are best installed on flat roofs where they can be angled toward the south-facing sun, but they can be placed anywhere within 1,000 feet of your home that receives plenty of sun. PV panels require light but not heat and can be installed in cold, sunny locations just as easily as warm ones. Although not very heavy, PV panels weigh about twice as much as typical shingles do. Building-Integrated PV (BIPV) panels can also be installed as an alternative to conventional shingles. The average payback period of a solar panel is five to ten years, but that number will vary depending on the amount of power you use, the location and area of the panels, and the geographic location of your home.

Solar Radiation
Radiation emitted by the Sun. It is also referred to as short-wave radiation. Solar radiation has a distinctive range of wavelengths (spectrum) determined by the temperature of the Sun. See ultraviolet radiation, infrared radiation, radiation.

Sustainable

Meeting the needs of the present without diminishing the ability of future generations to meet their needs. Sustainability also means that human practices do not result in the permanent damage, alteration or depletion of the environment, ecosystems, species or natural resources.

Tropical Cyclone
Aka Hurricane (in North America), Typhoon (in Asia). A tropical cyclone is a rapid rotating storm originating over tropical oceans from where it draws the energy to develop. It has a low pressure center and clouds spiraling towards the eyewall surrounding the "eye", the central part of the system where the weather is normally calm and free of clouds. Its diameter is typically around 200 to 500 km, but can reach 1000 km. A tropical cyclone brings very violent winds, torrential rain, high waves and, in some cases, very destructive storm surges and coastal flooding. The winds blow counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. Tropical cyclones above a certain strength are given names in the interests of public safety.

Water Vapor
The most abundant greenhouse gas, it is the water present in the atmosphere in gaseous form. Water vapor is an important part of the natural greenhouse effect. While humans are not significantly increasing its concentration, it contributes to the enhanced greenhouse effect because the warming influence of greenhouse gases leads to a positive water vapor feedback. In addition to its role as a natural greenhouse gas, water vapor plays an important role in regulating the temperature of the planet because clouds form when excess water vapor in the atmosphere condenses to form ice and water droplets and precipitation. See greenhouse gas.

Weather
Weather is the state of the atmosphere at a given place and time, regarding heat, humidity or dryness, sunshine or cloud cover, wind, and precipitation. Weather is a temporary condition and thus, constantly in flux. While weather is typically measured in a given location, weather systems move and change, influencing weather in other places near and far.

Wildfire
A wildfire is an uncontrolled fire that burns wildland vegetation, often but not exclusively in rural areas. Wildfires can burn in forests, grasslands, savannas, and other ecosystems, and have been doing so for hundreds of millions of years. They are not limited to a particular environment.

There are two main types of wildfires: ground fires and surface fires. Ground fires are those that burn vegetation under the soil, and are typically ignited in soil thick with organic matter that can feed the flames, like plant roots. Surface fires, on the other hand, burn in dead or dry vegetation that is lying or growing just above the ground. Parched grass or fallen leaves serve as fuel for surface fires. Crown fires burn in the leaves and canopies of trees and shrubs.

Wind Energy
Wind energy is collected from motion caused by heavy winds. Wind energy is collected in turbines with propellers that spin when the wind blows and turn the motion of the propeller into energy that can be used in the electrical grid. Wind energy is a clean, renewable energy source that is abundant in windy areas. Large wind farms are often located outside of cities, supplying power for electrical grids within the city.

Zero-Waste
Efforts to reduce the amount of waste that goes to landfills by 90% or more. This is typically accomplished by reducing consumption overall, and implementing systems for recycling and composting waste.