

## Wide Spread of Aquatic Pollution by Human Activities

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### Introduction

Water pollution (or aquatic pollution) is the contamination of water bodies, usually as a result of human activities, in such a manner that negatively affects its legitimate uses pollution reduces the ability of the body of water to provide the ecosystem services that it would otherwise provide. Water bodies include for example lakes, rivers, oceans, aquifers, reservoirs and groundwater. Water pollution results when contaminants are introduced into these water bodies. Water pollution can usually be attributed to one of four sources: sewage, industry, agriculture, and urban runoff including storm water. For example, releasing inadequately treated wastewater into natural waters can lead to degradation of these aquatic ecosystems. Water pollution can also lead to water-borne diseases for people using polluted water for drinking, bathing, washing or irrigation. Supplying clean drinking water is an important ecosystem service provided by some freshwater systems, but approximately 785 million people in the world do not have access to clean drinking water because of pollution.

Water pollution can be classified as surface water pollution (for example lakes, streams, estuaries, and parts of the ocean in marine pollution) or groundwater pollution. Sources of water pollution are either point sources or non-point sources. Point sources have one identifiable cause, such as a storm drain, a wastewater treatment plant or an oil spill. Non-point sources are more diffuse, such as agricultural runoff. Pollution is the result of the cumulative effect over time.

A practical definition of water pollution is: "Water pollution is the addition of substances or energy forms that directly or indirectly alter the nature of the water body in such a manner that negatively affects its legitimate uses" Therefore, pollution is associated with concepts attributed to humans, namely the negative alterations and the uses of the water body. Water is typically referred to as polluted when it is impaired by anthropogenic contaminants. Due to these contaminants it either does not support a human use, such as drinking water, or

undergoes a marked shift in its ability to support its biotic communities,

Water pollution may be analyzed through several broad categories of methods: physical, chemical and biological. Some methods may be conducted in situ, without sampling, such as temperature. Others involve collection of samples, followed by specialized analytical tests in the laboratory. Standardized, validated analytical test methods, for water and wastewater samples have been published.

The complexity of water quality as a subject is reflected in the many types of measurements of water quality indicators. Some measurements of water quality are most accurately made on-site, because water exists in equilibrium with its surroundings. Measurements commonly made on-site and in direct contact with the water source in question include temperature, pH, dissolved oxygen, conductivity, oxygen reduction potential (ORP), turbidity, and Sec chi disk depth.

Water pollution is a major global environmental problem because it can result in the degradation of aquatic ecosystems. The specific contaminants leading to pollution in water include a wide spectrum of chemicals, pathogens, and physical changes such as elevated temperature. While many of the chemicals and substances that are regulated may be naturally occurring (calcium, sodium, iron, manganese, etc.) the concentration usually determines what is a natural component of water and what is a contaminant. High concentrations of naturally occurring substances can have negative impacts on aquatic flora and fauna. Oxygen-depleting substances may be natural materials such as plant matter (e.g. leaves and grass) as well as man-made chemicals. Other natural and anthropogenic substances may cause turbidity (cloudiness) which blocks light and disrupts plant growth, and clogs the gills of some fish species.

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