

### 1. Water pollution - Definition

**Water pollution** is the contamination of water bodies such as lakes, rivers, oceans, and groundwater caused by human activities, which can be harmful to organisms and plants that live in these water bodies. It occurs when pollutants are discharged directly into water bodies without treating it first.

### 2. Sources of water pollution

#### 2.1. Point source pollution

Point source pollution refers to contaminants that enter a waterway through a discrete conveyance, such as a pipe or ditch. Examples of sources in this category include discharges from a sewage treatment plant, a factory, or a city storm drain.

#### 2.2. Non-point source pollution

Non-point source (NPS) pollution refers to diffuse contamination that does not originate from a single discrete source. NPS pollution is often a cumulative effect of small amounts of contaminants gathered from a large area. Nutrient runoff in storm water from "sheet flow" over an agricultural field or a forest are sometimes cited as examples of NPS pollution. Contaminated storm water washed off of parking lots, roads and highways, called urban runoff, is sometimes included under the category of NPS pollution. However, this runoff is typically channeled into storm drain systems and discharged through pipes to local surface waters, and is a point source. The CWA definition of point source was amended in 1987 to include municipal storm sewer systems, as well as industrial storm water, such as from construction sites.

### 3. Types of water pollution



**Surface water pollution** is the most recognizable form of water contamination. This is the pollution that can be visibly seen floating on the top of the water. While surface water pollution is often in the form of trash it can also be chemically based, such as gasoline or oil slicks floating on the water's surface. Surface water is the natural water resources of the Earth. They are found on the exterior of the Earth's crust and include:

- Oceans
- Rivers
- Lakes



Microorganisms that live in water feed on biodegradable substances. When too much biodegradable material is added to water, the number of microorganisms increase and use up the available oxygen. This is called oxygen depletion.

When oxygen levels in the water are depleted, relatively harmless aerobic microorganisms die and anaerobic microorganisms begin to thrive. Some anaerobic microorganisms are harmful to people, animals and the environment, as they produce harmful toxins such as ammonia and sulfides.



3.3.

A lot of the Earth's water is found underground in soil or under rock structures called aquifers. Humans often use aquifers as a means to obtain drinking water, and build wells to access it. When this water becomes polluted it is called groundwater 'pollution'. Groundwater pollution is often caused by pesticide contamination from the soil, this can infect our drinking water and cause huge problems.



3.4.

Nutrients are essential for plant growth and development. Many nutrients are found in wastewater and fertilisers, and these can cause excess weed and algae growth if large concentrations end up in water.

- This can contaminate drinking water and clog filters.
- This can be damaging to other aquatic organisms as the algae use up the oxygen in the water, leaving none for the surrounding marine life.

3.5.