

- **contamination of the soil(soil pollution)**
- Some of the more common soil contaminants are chlorinated hydrocarbons (CFH), heavy metals (such as chromium, cadmium—found in rechargeable batteries, and lead—found in lead paint, aviation fuel and still in some countries, gasoline), MTBE (Methyl Tertiary Butyl Ether), zinc, arsenic and benzene.

- In 2001 a series of press reports culminating in a book called *Fateful Harvest* unveiled a widespread practice of recycling industrial byproducts into fertilizer, resulting in the contamination of the soil with various metals.

Ordinary municipal landfills are the source of many chemical substances entering the soil environment (and often groundwater), emanating(coming) from the wide variety of refuse accepted, especially substances illegally discarded there, or from pre-*(1970) landfills that may have been subject to little control in the U.S. or EU. •

Water pollution •

Water pollution: Water is typically referred to as polluted when it is impaired by anthropogenic contaminants and either does not support a human use, such as drinking water, or undergoes a marked shift in its ability to support its constituent biotic communities, such as fish. Natural phenomena such as volcanoes, algae blooms, storms, and earthquakes also cause major changes in water quality and the ecological status of water. •

- **Water pollution** :is the pollution of bodies of water, such as lakes, rivers, the oceans, as well as groundwater. It occurs when pollutants reach these bodies of water, without treatment. Waste from homes, factories and other buildings get into the water bodies.

- **The main pollutants of water**
- Water pollution is a problem for the species and ecosystems there. It affects plants and organisms living in the water. In almost all cases the effect is damaging not only to individual species and populations, but also to the wider biological communities. The color is usually green or brown but normal water can be blue.
- **Agriculture** is one of the major sources of water pollution, because the fertilizers given to the crops for better growth are washed into rivers and lakes, which in large amounts pollute the water.

- **There are many chemicals that are naturally found in these bodies of water but today it is polluted by nitrates, phosphates, oil, acid from acid rain, and debris like sediments and fallen logs.**
- Water pollution affects the entire biosphere – plants and organisms living in these bodies of water. In almost all cases the effect is damaging not only to individual species and population, but also to the natural biological communities.

- **Classification of water pollution**
- Although interrelated, surface water and groundwater have often been studied and managed as separate resources. Surface water seeps through the soil and becomes groundwater. Conversely, groundwater can also feed surface water sources. Sources of surface water pollution are generally grouped into two categories based on their origin.

- **Groundwater pollution**

Interactions between groundwater and **surface water** are complex. Consequently, groundwater pollution, also referred to as groundwater contamination, is not as easily classified as surface water pollution. By its very nature, groundwater aquifers are susceptible to contamination from sources that may not directly affect surface water bodies, and the distinction of point vs. non-point source may be irrelevant.

- A spill or ongoing release of chemical or radionuclide contaminants into soil (located away from a surface water body) may not create point or non-point source pollution but can contaminate the aquifer below, creating a toxic plume. The movement of the plume, called a plume front, may be analyzed through a hydrological transport model or groundwater model. Analysis of groundwater contamination may focus on soil characteristics and site geology, hydrogeology, hydrology, and the nature of the contaminants.

- **Common sources of water pollution**

The specific contaminants leading to pollution in water include a wide spectrum of chemicals, pathogens, and **physical changes** such as elevated temperature and discoloration •

- While many of the **chemicals and substances** that are regulated may be naturally occurring (calcium, sodium, iron, manganese, etc.) the **concentration** is often the key in determining 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.

- Many of the chemical substances are toxic.
- **Pathogens** can produce waterborne diseases in either human or animal hosts.
- **Alteration of water's physical chemistry includes: acidity (change in pH), electrical conductivity, temperature, and eutrophication. Eutrophication: (*is an increase in the concentration of chemical nutrients in an ecosystem to an extent that increases in the primary productivity of the ecosystem*). Depending on the degree of eutrophication, subsequent negative environmental effects such as anoxia (oxygen depletion) and severe reductions in water quality may occur, affecting fish and other animal populations.**

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