

Thermal Pollution

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With the industrial manufactories and the increase of thermoplastic productions, the environmental health of the Earth has been challenged for the past hundred years. Pollution is now one of the most destructive forces that has been applied to our Mother Earth. Pollutants can cause variety of skin and respiratory infections, as well as cardiac diseases, and poisonous food products that can severely upset our digestive system.

Thermal pollution is the degradation of water quality by any process that changes the temperature of water. The sudden increase or decrease in the temperature will cause the natural bodies of water such as the ocean, lakes, and river ponds, to have imbalances in their molecular behavior.

The causes of thermal pollution

Production and manufacturing plants are the biggest source of thermal pollution. In order to keep factory equipment working properly, these plants draw water from the natural nearby sources to cool down the machines, and through this process, the water will be heated. When this heated water returns to the river or the ocean, the temperature of the entire marine system rises sharply. This changes the oxygen levels in the water, which significantly decreases the quality and longevity of wildlife that lives there.

Another factor of thermal pollution is soil erosion, which can cause water bodies to rise and making them more exposed to sunlight. As sunlight is constantly shining on the water surface, it could rise anaerobic conditions for the aquatic biomes as the comparatively high temperature from the sun flows from one water molecule to another. This process is similar to deforestation, which is a condition in which the trees and plants are no longer protecting the rivers or lakes from surplus radiation. Deforestation is also a main cause of the higher concentrations of greenhouse gases, which also can lead to global warming in the

atmosphere.

The effects of thermal pollution

As with all types of pollutions, thermal brings unimaginably terrible conditions to the health of our ecology. The warm temperature reduces the level of Dissolved Oxygen in the water since water at warm temperatures holds a lower level of oxygen than water when it is cold. This declivity in Dissolved Oxygen suffocates the aquatic plants and marine animals which live in and by the water.

Not content with raising the temperature, thermal pollution often brings toxic matters into the water source from the industries that use it. These toxins may contain chemicals or radiation that may have harsh impact on the local environment and make it be ready for different virus attacks. This poisoning leads to an often overlooked problem; the loss of biodiversity. When warm, polluted water enters the ecosystem, it changes the environment, and causes certain species of organisms to transport to some other places while their reproduction was presenting.

Lastly, a sudden change of temperature is also called a thermal shock, which can result in killing the organisms in the marine system such as fish, insects, plants or amphibians. The decline in activities under high temperature can also bring abnormal reproductive system as excessive temperature can cause the release of immature eggs or can prevent normal development of certain eggs. Even slow-deaths can be present for some sensitive marine animals. After all, one degree Celsius can cause significant changes in a life's metabolism and other adverse in cellular biology effects.

Relations between global warming and thermal pollution and its situation in current China

Due to the fast development of its economy and marketing, many cities in China are “embracing” their toxic water. China's coastal manufacturing belt faces the most pollution and despite the closure of

thousands of pollutant sources, a third of the waterway remains well below the government's modest standards for water quality. Most of China's rural areas lack a system to treat wastewater. In 2011, Greenpeace launched the Detox campaign to publicize the relationship between multinational companies, their suppliers and water pollution in China. The Detox campaign challenges multinational companies to work with their suppliers to eliminate all instances of hazardous chemicals into water sources. Although combating water pollution in China will require much more work, continued efforts from organizations like the Detox Campaign provided a leap of hope for the future of China's people and environment.

Living here in Beilun we are part of that costal manufacturing belt. It is not just up to our parents to help to fight this, everyone needs to do their part to make the water here beautiful and clean, and to make our beaches the pride of eastern hemisphere.