THERMAL POLLUTION

## Thermal pollution is the degradation of [water quality](https://en.wikipedia.org/wiki/Water_quality) by any process that changes ambient water [temperature](https://en.wikipedia.org/wiki/Temperature). A common cause of thermal pollution is the use of water asa [coolant](https://en.wikipedia.org/wiki/Coolant) by [power plants](https://en.wikipedia.org/wiki/Power_plants) and industrial manufacturers. When water used as a coolant is returned to the natural environment at a higher temperature, the sudden change in temperature decreases [oxygen](https://en.wikipedia.org/wiki/Oxygen) supply and affects [ecosystem](https://en.wikipedia.org/wiki/Ecosystem) composition Fish and other organisms adapted to particular temperature range can be killed by an abrupt change in water temperature (either a rapid increase or decrease) known as "thermal shock."

ECOLOGICAL EFFECTS

These kinds of environmental pollution can cause aquatic life to suffer or die due to the increased temperature, can cause discomfort to communities dealing with higher temperatures and can even affect plant-life in and around the area.

Elevated temperature typically decreases the level of [dissolved oxygen](https://en.wikipedia.org/wiki/Dissolved_oxygen) of water, as gases are less soluble in hotter liquids. This can harm aquatic animals such as fish, [amphibians](https://en.wikipedia.org/wiki/Amphibians) and other aquatic organisms. Thermal pollution may also increase the [metabolic](https://en.wikipedia.org/wiki/Metabolic) rate of aquatic animals, as [enzyme](https://en.wikipedia.org/wiki/Enzyme) activity, resulting in these organisms consuming more food in a shorter time than if their environment were not changed.[[5]](https://en.wikipedia.org/wiki/Thermal_pollution#cite_note-Goel-5):179An increased metabolic rate may result in fewer resources; the more adapted organisms moving in may have an advantage over organisms that are not used to the warmer temperature. As a result, [food chains](https://en.wikipedia.org/wiki/Food_chain) of the old and new environments may be compromised. Some fish species will avoid stream segments or coastal areas adjacent to a thermal discharge. [Biodiversity](https://en.wikipedia.org/wiki/Biodiversity) can be decreased as a result.

High temperature limits oxygen dispersion into deeper waters, contributing to [anaerobic](https://en.wikipedia.org/wiki/Hypoxia_(environmental)" \o "Hypoxia (environmental))conditions. This can lead to increased [bacteria](https://en.wikipedia.org/wiki/Bacteria) levels when there is ample food supply. Many aquatic species will fail to reproduce at elevated temperatures.

[Primary producers](https://en.wikipedia.org/wiki/Primary_producer) (e.g. plants, [cyanobacteria](https://en.wikipedia.org/wiki/Cyanobacteria)) are affected by warm water because higher water temperature increases plant growth rates, resulting in a shorter lifespan and species [overpopulation](https://en.wikipedia.org/wiki/Overpopulation). This can cause an [algae bloom](https://en.wikipedia.org/wiki/Algae_bloom) which reduces oxygen levels.