

The effects of acidification on fresh water life

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Signs that a water body is becoming acidified are clearer water and declining fish populations. The clearness is primarily due to that the humic substances that normally colour the water, precipitate and settle on the lake floor. The main reason for fish stocks declining, both overall and in number of species, is failure to reproduce in acidic water. Many other biological changes occur, too, when the water becomes acidified.

The number of species of phytoplankton diminishes rapidly. Whereas in lakes that are poor in nutrients, and have a pH value of more than 6, there will normally be some fifty species, in an acidified lake there will hardly be more than ten. Among the plants that thrive in an acidified environment is bog moss, while some species that grow at the water's edge, such as lobelia, quillwort, and shoreweeds, will be pressed back, partly because they are smothered with carpets of bog moss.

Acid water is however not always the direct cause of extinctions. Aluminium in ion form, which can harm fish as well as some other aquatic animals, occurs in raised concentration as a result of acidification. At some pH values, the aluminium ions precipitate and lay themselves on the fishes' gills, preventing the uptake of oxygen from the water. The result may be an acute fish kill.

The disappearance of the fish will have widespread repercussions on other animal and plant life in a lake. Some large insects, on which the fish normally feed and therefore keep their numbers down, will show a marked increase, and that will in turn affect the incidence of smaller insects, plankton, and so forth.

The melting snow in spring, but also heavy autumn rains, can cause the pH value of the water in streams and lakes to drop markedly during a brief period. The sudden onrush of great volumes of water, containing accumulated acid from the precipitation, can by itself have an effect equal to year- round acidification.

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Соціально-гуманітарні аспекти розвитку сучасного суспільства : матеріали Всеукраїнської наукової конференції викладачів, аспірантів, співробітників та студентів, м. Суми, 21-22 квітня 2014 р. / Відп. за вип. О.М. Сушкова. — Суми : СумДУ, 2014. — С. 417-418.