Burke Larsen

Killer Water: An Investigation into the Lethal Lake Nyos

In 1986, Lake Nyos in Cameroon spewed forth multiple tons of carbon dioxide gas, killing almost 1800 people and all animal life in the surrounding area. Many theories exist as to why this extensive amount of carbon dioxide was suddenly released as a limnic eruption. One of the most probable theories states that temperature stratification and a sudden interruption in the strata caused cold, carbon dioxide saturated water to rise to the surface where it warmed up. As it warmed up, it released the carbon dioxide dissolved in it. The purpose of this project is to test the conditions of Lake Nyos to determine whether this theory is supported by evidence on a small scale. Multiple experiments were used to determine if carbon dioxide dissolves better in colder water, if carbon dioxide saturated water releases carbon dioxide when warmed up, if temperature stratification in a body of water is possible, if an interruption in the stratification will cause upward currents in the water, and if the phenomenon occurring in Lake Nyos can be successfully recreated on a small scale. After experimentation, it was determined that all the conditions that were present in Lake Nyos at the time of the release of carbon dioxide could have contributed to the eruption. It was concluded that an interruption in temperature stratification was the possible cause of the release of carbon dioxide from Lake Nyos. Knowing the reason for the eruption is the first step in stopping it from happening again.