# The Effect of Nitrate in Polluted Water on Daphnia

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Daphnia Magna are planktonic crustaceans that are commonly known as “water fleas”. The Daphnia live in multiple environments varying from freshwater lakes to acidic swamps. Although, they can only survive on a certain level of nitrate. These creatures can filter microbes from polluted water which can be used as a water treatment method. The Daphnia is a good model for larger organisms and how they could react to nitrate changes. The experiment was conducted to test what levels of nitrate and polluted water affect Daphnia’s heart rate and movement. We tested this by treating Daphnia in 0.5, 2, 5 and 20 mg/L concentration of nitrate for different time intervals to simulate polluted water. We looked at heart rate and responsive movement intently under a microscope to see how these levels of nitrate affected each Daphnia. We hypothesized that if Daphnia are exposed to polluted water containing high levels of nitrate, their heart rate and movement will increase, eventually leading to their deaths. By conducting the experiment we observed that our hypothesis is incorrect. When nitrates increase, heart rate decreases, along with the movement. When nitrates decrease, heart rate increases as movement decreases. Changes in nitrate conditions cause a change in heart rate with the highest level being lethal. In future experiments, we would like to create more accurate results by maintaining the same age and gender for all Daphnia.

**Awards Won:**