Abstract

It has been discovered over time that arsenic is capable of causing long-term health problems to both humans and freshwater species alike. In the Puget Sound lowlands region, many of the freshwater lakes have been contaminated by a copper smelter that used to exist in Ruston. In our experiment, we looked at how Daphnia hemoglobin gene expression responded to various concentrations of arsenic in order to apply this knowledge to the Puget Sound. In order to observe how exactly arsenate affects Daphnia Magna, we acutely exposed D. Magna to 3 concentrations of arsenic: 0ug/ml, .5ug/ml, and 5ug/ml, and observed how the Daphnia responded following a 3-hour and 24-hour exposure. After assessing for lethality, we performed a semi-quantitative PCR to determine the relative expression of three hemoglobin genes found in Daphnia (dhb1, dhb2, dhb3). It was anticipated that the D. Magna exposed to higher levels of arsenate would not only experience a higher lethality rate, but they would upregulate hemoglobin gene expression. Data from the aforementioned experiments are forthcoming.