

**ENUMERATION OF HYDROTHERMAL PLUME MICROBES
BY FLOW CYTOMETRY**

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ABSTRACT

Microorganisms play an integral part in hydrothermal plume ecosystem dynamics. Enumeration of microbial cells is needed to quantify microbial biomass. Epifluorescence microscopy with nucleic acid staining has been used satisfactorily to count plume microbial populations. The enumeration process would be enhanced by flow cytometry, which offers rapid, sensitive, and automated enumeration. However, enumeration was not possible in initial analysis of hydrothermal vent plume samples via flow cytometry. This research illuminates two aspects of the mineral rich hydrothermal plume that are limiting enumeration via flow cytometry: the non-specific binding of nucleic acid stains to mineral surfaces and mineral autofluorescence. In addition, preliminary results are shown of methods to eliminate minerals from hydrothermal plume samples.