

## **Effects of Temperature and Organic Matter Concentration on Survival and Growth of Sewage-Indicating Bacteria in Hudson River Water**

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*Enterococcus* is a bacteria used to indicate sewage contamination in waterways. The Hudson River Estuary has varying levels of *Enterococcus* contamination at different locations. Once *Enterococcus* enter the river, variables such as temperature, organic matter concentration, and UV-light exposure, may affect the rate of growth and decay of these bacterial contaminants. The Hudson River Estuary has a high particulate level and high organic matter concentration, which may cause different growth and decay rates than in other river systems. Experimental incubations of *Enterococcus* in Hudson River water showed that higher temperatures caused increased rates of decay. Additions of organic matter led to increased growth rates at all temperatures. In some locations, in-situ organic matter concentrations were enough to support at least one day of growth. Decay rates in filtered (0.2  $\mu\text{m}$ ) and unfiltered water were similar, suggesting that predation and competition from other organisms were not significant sources of mortality for *Enterococcus*. However, *Enterococcus* was shown to have very high decay rates when put under near water-surface UV-light intensities. Decay rates were lower when *Enterococcus* was incubated under reduced UV-light or visible light only. These factors affect the persistence of *Enterococcus* in the environment, which is important in managing Hudson River water quality.