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 µm) 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.