

CULTURING GREAT SALT LAKE MICROBES

Abiotic Factors Challenge

TEACHER RESOURCE

Abiotic Factors to test on Great Salt Lake Microbe growth

Abiotic Factor	What to Use	Background
Salinity	Culture samples on agar plates of varied salinity. Add different amounts of NaCl (or Instant Ocean™ or non-iodized salt) to the growth medium before pouring plates. Calculate percent salinity in grams per 100 mL.	The salinity of Great Salt Lake varies between 1% and 28% depending on location and time of year. Salt concentration is less where freshwater enters the lake and higher in the North arm of the lake which is cut off by a railroad causeway.
pH	Adjust the pH of the growth medium before pouring plates by adding NaOH.	
UV Exposure	A UV light box can provide direct exposure. If you don't have access to a UV light box, the "sterilize" function on many goggle cabinets uses UV light.	At 4,200 feet in elevation, microbes of the Great Salt Lake receive ultraviolet light levels that are about 15% higher than at sea level.
Temperature	An incubator, heat lamp, refrigerator and freezer can be used to alter the temperature at which you incubate Great Salt Lake Microbes.	The optimal temperature for Great Salt Lake Microbes is between 30 - 40 degrees Celsius. Microbe growth is kept in check by temperatures at the lake which range seasonally from below freezing to near 27 degrees Celsius.