Recommendations

For future advanced placement biology students who are thinking of doing something similar or this exact experiment here are my suggestions.

#1.) Know and plan your experiment and whether it's doable or not.

#2.) Know your spending limitations and manage your time.

#3.) You can expand this experiment by comparing the results to a fluorescent bacteria *Vibrio fisheri* and see which one can tolerate the harsher conditions

#4.) You can develop more accurate and precise measuring of liquids and develop a way to know how many dinoflagellates (roughly) your putting into each test tube.

#5.) Go out to the natural environment the ocean and compare those to the cultured and how they react in natural surroundings vs. laboratory

#6.) Limit the factors that may be affecting the Dinoflagellates by having them in a controlled room that the temperature is constant and also to check the salinity more carefully within the saltwater mediums.

#7.) Try putting yeast extracts into one of the medias and see what happens, how it affects their growth.

With these improvements stated above I feel anyone that loves bizarre creatures or interested in marine life this is for you. I enjoyed these little glow protists and I feel that they are a key detector in the condition of our earth's ocean. There fascinating to watch and research but so little is known about them still. Many scientists are especially puzzled by this organisms elaborate life and reproductive cycle.

Scientists are still trying to make the connection with bioluminescent Dinos and fish breeding routes and behaviors that may be dependent on them. Dolphins are also in connection with them but scientists don't exactly know why or how. This experiment gave me first hand look at natures own night light and how it can be more than meets the eye. So explore something close to us we take advantage of, the ocean.

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