



Colorado Science and Engineering Fair

2024 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: From Bioluminescence to Global Warming: Unveiling the Glow (Investigating Temperature's Impact on Bioluminescence and the Resilience of Marine Ecosystems to Global Warming)

Finalist's Name: Ayra Asif Memon

School and City: Crescent View Academy, Aurora

Sponsor's Name: Asma Memon

Category: Earth & Environmental Sciences (EAEV)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

The aim of this experiment is to provide insight into the relationship between temperature and bioluminescence duration and brightness in *Pyrocystis fusiformis* and related organisms. I hypothesize that room temperature would induce the highest bioluminescence in *Pyrocystis fusiformis*. My reasoning is based on the belief that extremely cold temperatures would inhibit movement due to freezing, while excessively warm temperatures might lead to their death or excessive stress. Room temperature, being intermediate, is theorized to be conducive for optimal bioluminescent activity as it falls between the extremes of too cold and too warm. Climate change can mess up the bioluminescence of some organisms and mess with how they interact with other species. This can affect how these organisms' function in the environment and how their food chains, such as what they eat and what they are eaten by. It can also mess with how carbon moves around in the ocean. This is bad for the ocean and everything that depends on it, including humans. To lessen the effects of climate change on the ocean, we must understand how these things are connected.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

AAM

Date:

03/07/24

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.