



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Johan G. Thuen	Project Number J1521
Project Title Lights from the Sea: How Do Light/Dark Cycles Affect Bioluminescence?	
<div><div>Objectives/Goals The purpose of my project is to see how different light/dark cycles affect bioluminescence in dinoflagellates. I believe that as the light cycle nears zero hours per 24 hour cycle the glow will diminish and at zero hours per day of light I believe they will stop glowing. I also predict that if there is no dark time (24 hours of light) they will stop glowing.</div><div>Methods/Materials Twenty-one test tube samples of the dinoflagellate, <i>Pyrocystis fusiformis</i>, a large unicellular bioluminescent algae, were observed under seven different light/dark cycles. These cycles ranged from zero hours of light during a 24 hour cycle to 24 hours of light during a 24 hour cycle. Observations were recorded four times a day for seven days. The seven day experiment was then repeated two more times.</div><div>Results The data results showed that 12 to 20 hours of light produced the most consistent brightness during the dark cycle. Eight hours or less of light during a 24 hour cycle began to lose brightness during its dark cycle and zero hours of light could not maintain its brightness.</div><div>Conclusions/Discussion My conclusion is that bioluminescent dinoflagellates need a minimum amount of light during a 24 hour cycle to maintain their glow and that too much light or dark will diminish their brightness.</div></div>	
Summary Statement My project demonstrates how different light/dark cycles affect the bioluminescence of dinoflagellates.	
Help Received My Mother helped type my report. She also did the 11 a.m. observations on school days.	