



Marine Science Club - Bioluminescence

Suggestions for meeting topics, activities, and resources

Brief Background

Bioluminescence is a emission of light by living organisms through biochemical reactions within their bodies. The reaction requires organisms a molecule called luciferin. Luciferin produces light when it reacts with oxygen. There are many things that are still unclear about the fuctions of bioluminescence. The typical functions seen in deep sea organisms is to evade or scare predators, lure prey species, and communication between members of the same species.

Resources & References

Video Resources

- NOAA - Ocean Today (<https://oceantoday.noaa.gov/bioluminescentocean/>)
- TED Talk with Dr. Edith Widder (https://www.ted.com/talks/edith_widder_the_weird_wonderful_world_of_bioluminescence)

Websties

- GoldBio - the History of Lucuferin and Luciferase (<https://www.goldbio.com/articles/article/The-History-of-Luciferin-and-Luciferase-discovery-timeline>)
- Smithsonian (<https://ocean.si.edu/ocean-life/fish/bioluminescence>)
- National Geographic (<https://education.nationalgeographic.org/resource/bioluminescence>)

Interesting Books

- *Bioluminescence: Nature and Science at Work* by Marc Zimmer
- *Bioluminescence: Living Lights, Lights for Living* Therese Wilson and J. Woodland Hastings
- *Fire in the Sea: Bioluminescence and Henry Compton's Art of the Deep* by David A. Mckee, Henry Compton, Larry J. Hyde (Contributor), Michael Barrett (Contributor), Jennifer Hardell (Contributor), Mark Anderson (Contributor)
- *a ballet of bioluminescence* by Paul Grimsley

Activity/Service Project Suggestions

Meeting Activities

- Light Painting (<https://ocean.si.edu/conservation/get-involved/light-painting-tutorial>)
- Watch the TED Talk as a group and discuss or investigate the topics that are highlighted in the talk.
- Pick one of the books (or find another) and have members read it and discuss.
- Investigate how science is thinking bioluminescence can be used to make things on Earth better.

Group Activities/Service Project

- Create a game that illustrates how deep sea animals use bioluminescence. Play it as group until its right and then create a document that can be used by teachers.
- Purchase some ostracods "sea firefly" and do the lab activity with club members (https://www.carolina.com/cellular-physiology-enzymes/sea-firefly-cypridina-hilgendorfii/FAM_203430.pr)
- Host a club bioluminescent party that feature glow in the dark objects.
- Create a bioluminescent exhibit that can be used at a science themed event or campus event.