Influene of Experimental Irradiane Reduction on Enriched Lake Vanda Cyanobacteria. Megan Kaye[1], Megan Krusor[1], Christy Grettenberger[1], Dawn Sumner[1].
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Introduction: Most microbial ecosystems on Earth are supported by photosynthesis. In photosynthetically driven ecosystems, irradiance influences microbial mat morphology through tradeoffs between biomass and population abundance. Even where cyanobacterial cell counts are low, cyanobacteria may be the dominant organisms in a microbial mat because of their greater cell biomass and specific morphology. Microbial mats at the bottom of perennially ice covered Antarctic Lake Vanda experience extreme seasonality, leading to extensive periods of darkness in the winter and irradiance in the summer.

Results: Here we explore the effect of light intensity on the generation of biomass, cell count, and cell morphology in planktonic photosynthesizers enriched from Lake Vanda [Figure 1]. In Lake Vanda, irradiance decreases with depth in the lake and is simulated in this experiment using shade cloth. Three experimental conditions, 100%, 90%, and 50% ambient irradiance, lead to variations is cell density [Figure 2]. Understanding additional patterns of development of the mats may lead to a more informed understanding of the biogeochemical patterns behind the formation of the mats on a larger scale.

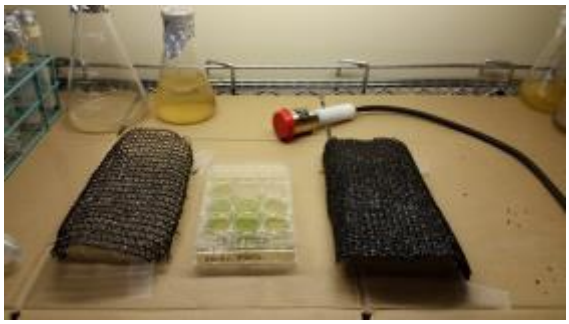

Figure 1. Experimental setup: 100% ambient light, 50% ambient light, and 10% ambient light.

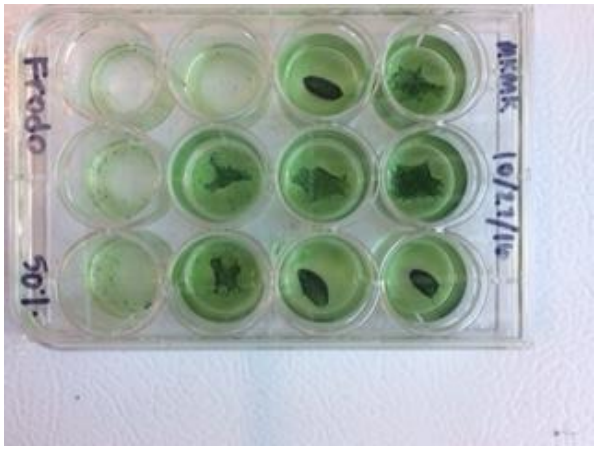

Figure 2. Preliminary results showing variation in culture density and growth habit.

References: Use the brief numbered style common in many abstracts, e.g., [1], [2], etc. References should then appear in numerical order in the reference list, and should use the following abbreviated style:

[1] Wall K. W. et al. (2011) *Geobiology*, *23*, 7537.