1106-VL-2275 **Thomas G Stojsavljevic*** (tom.stojsavljevic@gmail.com), 1428 E Capitol Drive, Apartment 1, Shorewood, WI 53211. *Mathematical Modeling of Competition for Light and Nutrients Between Phytoplankton Species in a Poorly Mixed Water Column.*

Phytoplankton live in a complex environment with two essential resources forming various gradients. Light supplied from above is never homogeneously distributed in a body of water due to refraction and absorption from biomass present in the ecosystem and from other sources. Nutrients in turn are typically supplied from below. In poorly mixed water columns phytoplankton can be heterogeneously distributed forming various layering patterns. The relationship between the location and the thickness of the layers is an open problem of interest. Here we present three models which study how competition for light and resources can form common layering patterns seen in nature and investigate how the location and thickness of the layer changes when the motility of the phytoplankton is varied. Using this we study the phenomenon of coexistence of multiple phytoplankton species and the presence of species spatial separation. (Received September 16, 2014)