1141-70-127 **Hansen Pei*** (hansenp@udel.edu), 15 Orchard Ave, 501 Ewing Hall, Newark, DE 19711, and **Louis Rossi**, **Pak-Wing Fok** and **John Pae**. *Modeling of Karlodinium Predation.* Preliminary report.

The predatory plankton species Karlodinium emits toxins as part of their hunting behavior, which can lead to toxic water conditions and fish-kills. One of the main function of toxin production is to immobilize prey, but how this affects predator and prey populations distribution has yet to be discussed mathematically. Our overarching goal is to understand the interactions between predator and prey swimming, toxin emissions and predation rates. A simplified 1-D model based on Broadwell PDEs is built to account for plankton's run-and-tumble movement pattern, and toxin concentrations effect on velocity. In a case where the toxin's source is not moving, we solved the coupled PDE analytically and matched the solution to Monte-Carlo simulations. In a case where the emitting source is moving, simulations are built to show the effect of global parameters on population density, possibly forming attracting and repelling points. (Received July 24, 2018)