

1106-AF-1443

Sophia Jang* (sophia.jang@ttu.edu), Department of Mathematics & Statistics, Lubbock, TX 79409, **James Baglama**, Kingston, RI , and **Li Wu**, Kingston, RI. *Dynamics of phytoplankton-zooplankton systems with toxin producing phytoplankton.*

There has been a global increase in harmful plankton blooms in the last few decades. One group is the toxin producing phytoplankton (TPP), which are the toxin producers that can contaminate seafood or kill higher trophic organisms. In this study, we use models of phytoplankton-zooplankton interactions with periodic toxin releasing by phytoplankton to investigate extinction and persistence of the populations. Models with spatial variations are also incorporated using reaction-diffusion equations. Consistent chaotic behavior is observed in the spatial homogeneous models when the zooplankton mortality and the maximal toxin liberation are not large. Passive diffusion of the plankton populations, however, can eliminate the chaotic interactions. (Received September 13, 2014)