

Population dynamics of stream insects

Olga Vasilyeva*

olga.vasilyeva@cnu.edu

We will discuss two models describing population dynamics of aquatic organisms subject to advection. Both models offer possible explanations of the drift paradox. The first model is based on a generalization of Fisher’s diffusion-reaction equation involving an extra advection term, and is applicable to a wide variety of organisms. The second model uses integro-differential approach to describe the population dynamics of stoneflies and similar species of stream insects with two distinct life stages: the larval stage and the winged adult stage.

*Department of Mathematics, Christopher Newport University, 1 Avenue of the Arts, Newport News, VA 23606, USA.