

Departmental Colloquium

**Dr. Olga Vasilyeva,
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**Friday, August 26, 2016
2:00-300 pm, HH-3017**

Population dynamics in streams and rivers

Abstract:

I will discuss models describing population dynamics of aquatic organisms subject to advection that offer a possible explanation of the “drift paradox” (persistence despite the downstream flow). These models are based on a generalization of Fisher’s diffusion-reaction equation involving an extra advection term, and are applicable to a wide variety of organisms. Next, I will discuss models describing the population dynamics of two or more competing species in stream ecosystems. It is shown that alterations of flow speed can influence the outcome of competition and thereby change community composition. Our analysis shows that at relatively high flow speed, each species’ intrinsic growth rate is the crucial factor that determines the outcome of competition. At low flow speeds, in contrast, the strength of interspecific competition determines community composition.