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Yu Jin* (yjin6@unl.edu), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588, and **Jon Jacobsen** and **Mark A. Lewis**. *Population persistence in temporally varying river environments*.

We study integrodifference models for growth and dispersal in the presence of advective flow with both periodic (alternating) and random kernel parameters. For the alternating kernel model, we obtain the principal eigenvalue of the linearization operator to determine population persistence and derive a boundary value problem to calculate it. For the random model, we establish two persistence metrics: a generalized spectral radius and the asymptotic growth rate, which are mathematically equivalent but can be understood differently, to determine population persistence or extinction. The theoretical framework and methods for calculations are provided, and the framework is applied to calculating persistence in highly variable river environments. (Received September 14, 2014)