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Leah B. Shaw* (lbshaw@wm.edu). *Extinction in a stage-structured population with fluctuating dispersal rates.*

Adults of reef-building species such as oysters are non-motile. New individuals arise in the population when larvae, which are dispersed by water currents, settle on an existing reef. We develop a stage-structured stochastic differential equation model for oyster populations. Due to positive feedback interactions between oysters, we include an Allee effect, in which populations above a threshold can grow but below the threshold approach extinction. Larval transport depends on rainfall, so we include stochastic fluctuations in larval availability due to variable rainfall. We extend to a metapopulation model in which reefs are coupled by dispersal of larvae. Self-replenishment of a reef by its own larvae can also occur. We study the risk of population extinction in the model. The roles of life history strategy and fluctuating connectivity are explored. (Received September 14, 2020)