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Shandelle M. Henson* (henson@andrews.edu), **J. M. Cushing** (cushing@math.arizona.edu)
and **J. L. Hayward** (hayward@andrews.edu). *Periodic matrix models for seasonal dynamics of stage structured populations II: Application to a seabird colony.*

Increased sea surface temperatures (SSTs) are associated with decreased resource levels for surface-feeding seabirds. Recent field observations of colonial seabirds in the Pacific Northwest have shown that increased SSTs also are associated with increased egg cannibalism and every-other-day egg-laying synchrony. Egg cannibalism may be adaptive when resources are low, given that one egg contains about half the daily calories needed for one adult bird. The data also show that eggs laid synchronously have less chance of being cannibalized. We apply the theory in the previous talk, Part I, to a particular class of population models for colonial seabirds that accounts for egg cannibalism and egg-laying synchrony. We track four life-stage categories (first-day eggs, older eggs and juveniles, reproductive adults, and nonreproductive adults) on a daily time scale through the breeding season and then look at the dynamic consequences of cannibalism and synchrony across breeding seasons. The possibility of backward bifurcations and strong Allee effects shows that the adaptive individual behaviors may confer an advantage at the population level, as well. (Received September 11, 2017)