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Jim M Cushing* (cushing@math.arizona.edu), Department of Mathematics, University of Arizona, 617 N Santa Rita, Tucson, AZ 85721, and **Amy Veprauskas** and **Shandelle M Henson**. *Environmental change and life history strategies: cannibalism and reproductive synchrony*. Preliminary report.

Environmental change, such as a reduction in food resources, can significantly alter the life history strategies of individuals in a population. For example, increased cannibalism has been widely documented in a large number of species, across from many taxa, in response to food shortages. In turn, individuals within a population will adapt their life history strategies in various ways in response to increased cannibalism. For example, recent observations made in glaucous-winged gull colonies on Protection Island National Wildlife Refuge have documented strong correlations among food shortages (caused by a rise in mean sea surface temperatures), adult cannibalism of eggs, and reproductive timing (egg laying) of females. We formulate a stage-structured matrix model for a cannibalistic population in order to investigate the complicated dynamics that can result in such a scenario, especially with regard to how different strategies relate to population extinction or persistence. Mathematically, the study involves the stability and bifurcations of equilibria and synchronous periodic cycles and the occurrence of multiple attractors and Allee effects. (Received September 10, 2014)