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**Jim M Cushing\*** ([cushing@math.arizona.edu](mailto:cushing@math.arizona.edu)), Department of Mathematics, University of Arizona, 617 N Santa Rita, Tucson, AZ 85721. *A model for the Darwinian dynamics of an adult-on-juvenile cannibalistic population.* Preliminary report.

I will describe a model for the dynamics of a cannibalistic population whose demographic structure is based on juveniles as victims and two types of adults: cannibals and non-cannibals. Model parameters control the rates at which adults can change from non-cannibal to cannibal (and vice versa). A key assumption is that while cannibalism has an obvious negative effect on juvenile survival, it has a positive effect on adult cannibal survival. Another is that basic vital rates (e.g. the per adult birth rate) depend on the availability of an environmental food resource, which is assumed to be negatively correlated with the rate of cannibalism. The question of interest is whether, and under what circumstances, cannibalism will prevent population extinction in circumstances when environmental change reduces resource availability. An evolutionary version of the model is formulated in order to determine conditions under which cannibalism will be favored by natural selection. This project is motivated by recent observations of marine birds (glaucous winged gulls) on Protection Island National Wildlife Refuge that show a strong positive correlation between rates of egg cannibalism by adults and mean sea surface temperature (an increase in which reduces gull food resources). (Received September 04, 2014)