

1044-92-217

Shandelle M. Henson* (henson@andrews.edu), Department of Mathematics, Andrews University, Berrien Springs, MI 49104, **J. M. Cushing**, Department of Mathematics, University of Arizona, Tucson, AZ 85721, and **James L. Hayward**, Biology Department, Andrews University, Berrien Springs, MI 49104. *A Discrete-time Model for Synchronization of Egg-laying in Colonial Seabirds*. Preliminary report.

Fraser Darling hypothesized in 1938 that social stimulation in colonial birds results in reproductive synchrony. He noted that increased reproductive synchrony may confer a selective advantage on colonial birds because predators quickly become satiated and consume fewer young than if reproduction were spread out over a longer period of time. This postulated mechanism for a seasonal reproductive pulse became known as the "Fraser Darling effect". In addition to the seasonal pulse of egg-laying that interested Darling, data suggest higher frequency pulses of egg-laying at 2- to 3-day intervals for about two weeks during the most vigorous egg-laying period. We use a discrete-time mathematical model to investigate whether social facilitation can induce 2-cycle dynamics in egg-laying. (Received September 02, 2008)