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Ziyad M. Al-Sharawi* (alsha1zm@cmich.edu), Ziyad M. Al-Sharawi, Central Michigan University, Math Department, Pearce Hall 202, Mount Pleasant, MI 48858. *Existence and Stability of Periodic Solutions of $x_n = f(n - 1 \bmod p, x_{n-k})$* . Preliminary report.

We discuss existence and stability of periodic solutions of the p -periodic difference equations with delay $x_n = f(n - 1 \bmod p, x_{n-k})$, which can be used to model species with non-overlapping generations in a periodically fluctuating environment when year classes may develop independently. When p divides k , we depend on the cycles of each individual map $f(i, x)$ to prove existence and stability of periodic solutions, and we depend on the theory of periodic difference equations to prove existence and stability of periodic solutions when p does not divide k . Also, we extend Sharkovsky's theorem to this kind of difference equations. (Received June 28, 2005)