1148-39-264 **Elliott J. Bertrand*** (bertrande@sacredheart.edu), Sacred Heart University, Fairfield, CT 06825, and **Mustafa Kulenovic** (mkulenovic@uri.edu). *Global Behavior of a Class of Order-k Discrete Dynamical Systems.*

The first-order Beverton–Holt equation has been widely studied and was historically used to model the population dynamics of fisheries. In this presentation we will consider a class of order-k difference equations that generalize this classical model. Consider

$$x_{n+1} = \frac{af(x_n, x_{n-1}, \ldots, x_{n+1-k})}{1 + f(x_n, x_{n-1}, \ldots, x_{n+1-k})}, \quad n = 0, 1, \ldots,$$

where k is a fixed positive integer, f is a function nondecreasing in all arguments, a is a positive constant, and $x_0, x_{-1}, \ldots, x_{1-k}$ are nonnegative numbers in the domain of f. We will discuss several examples of such equations and present some general theory. When $k = 2$, we will review some global dynamic scenarios in the event f is a certain type of linear or quadratic polynomial, and we explore the existence problem of period-two solutions. We will further present results for the global dynamics of the class of difference equations for which f satisfies specific algebraic or concavity conditions. (Received February 04, 2019)