1023-92-1767 **Azmy S. Ackleh**, **Keng Deng** and **Jeremy J. Thibodeaux*** (jjt9667@louisiana.edu), 124 Jomela Dr. Apt 161, Lafayette, LA 70503. *A Monotone Approximation for a Size-Structured Population Model with a Generalized Environment.*

We study a nonlinear size structured population model with an environment general enough to include hierarchy. We also remove the standard requirement that individuals have nonnegative growth rates, which allows the modeling of populations in which individuals may experience a reduction in size. To show existence and uniqueness of the solution to the model, we establish a comparison principle and construct monotone sequences. A fully discretized numerical scheme based on these monotone sequences is presented and utilized to provide some numerical examples. (Received September 26, 2006)