Peter Pflaumer,
TU Dortmund, Department of Statistics,
peter.pflaumer@tu-dortmund.de

Piecewise Exponential Survivor Function, Intrinsic Rate of Growth and Stable Population for Blue Whales (Balaenoptera Musculus)

Continuous models of population dynamics are used to estimate the intrinsic growth rate and other demographic characteristics of blue whale populations. The focus is on a simple life table model: the piecewise exponential distribution. With the help of this distribution, simple formulas for the calculation of important demographic parameters can be derived. The piecewise exponential survival function is an appropriate choice for demographic modeling of blue whale populations when little information on mortality is available, as long as one is not interested in the distribution of old age or even wants to estimate the maximum age. A major advantage of this simple function is the fact that simple formulas can be derived for important demographic parameters. More realistic survival functions that consider continuous hazard functions produce essentially the same results. However, they require the estimation of additional parameters, which may not be feasable especially in view of the limited data information available for wild cetacean populations.