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Supplementary Materials for

Extreme longevity may be the rule not the exception in Balaenid whales

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This PDF file includes:

Figs. S1 to S3

Validation by Simulation: Effect of Changes in Mortality

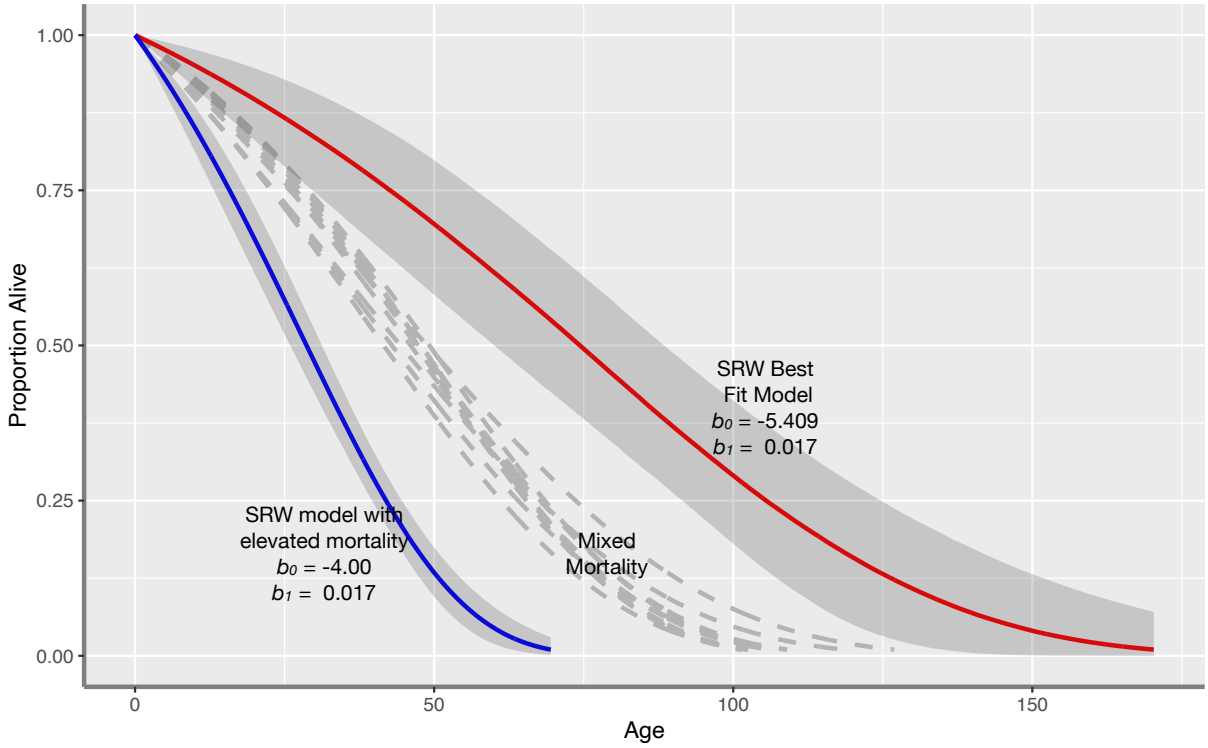

Figure S1: **Effect of nonstationary mortality parameter on estimated survival curves.** Ten simulated mark-recapture time-series, where the population experiences an increase in baseline mortality in the year 2000, were fit to the Gompertz survival model (dashed grey lines). These fits are compared to the two mortality functions that were mixed: the first was the mortality function estimated from the real SRW time series data (red line; the mortality function between 1979-2000 in the mixed simulations) and an increased mortality where the b_0 parameter is set -4.0 (blue; the mortality function between 2000-2021 in the mixed simulations). Resulting fits produced intermediate estimates of potential longevity.

Posterior Distributions

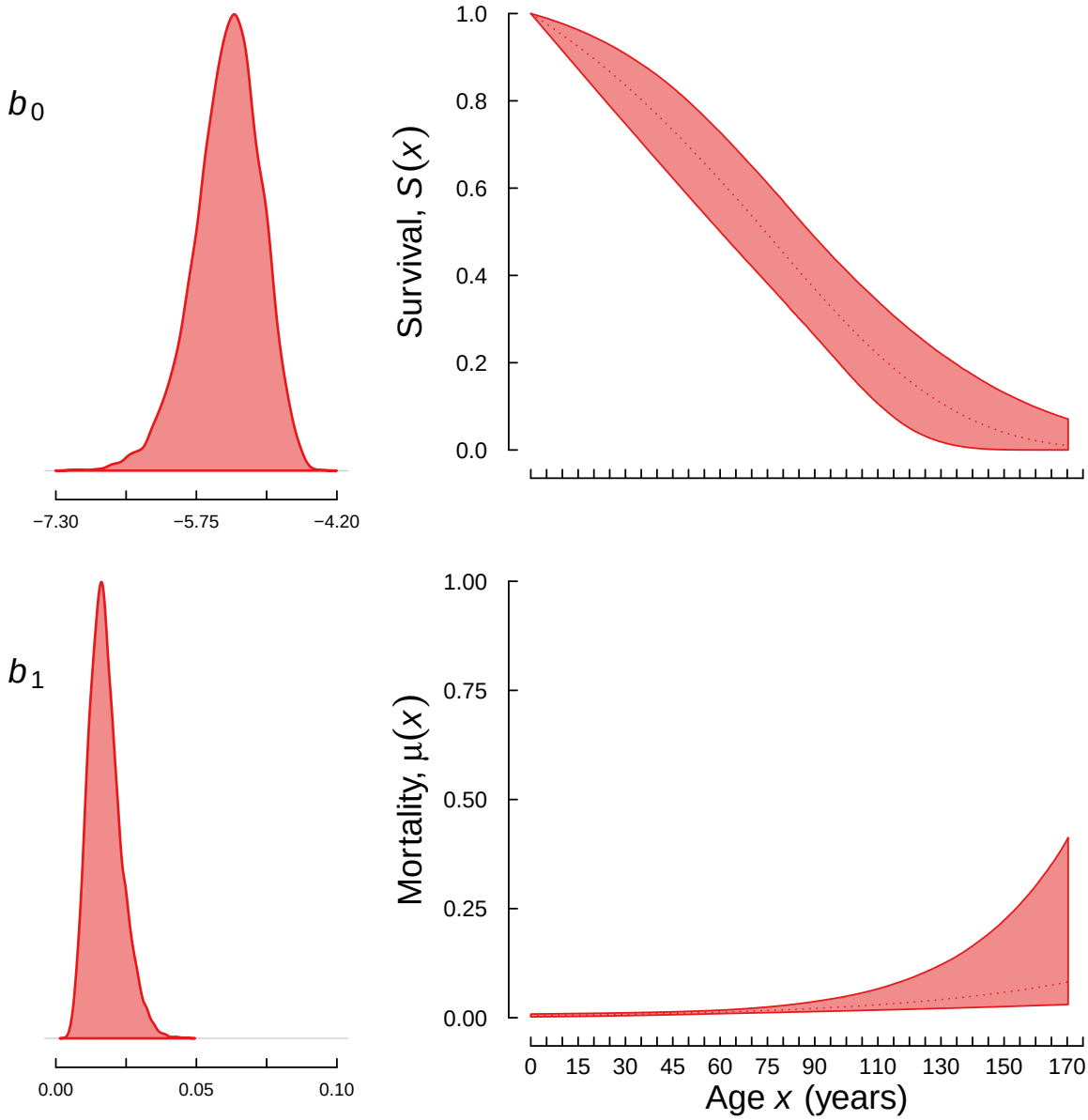

Figure S2: **Gompertz model hazard and survival curves and posterior distributions fit to the SRW data.** Posterior distributions (left panels), and survival and hazard functions (right panels), of the best fitting model (unmodified Gompertz) fit to the SRW mark-recapture time series.

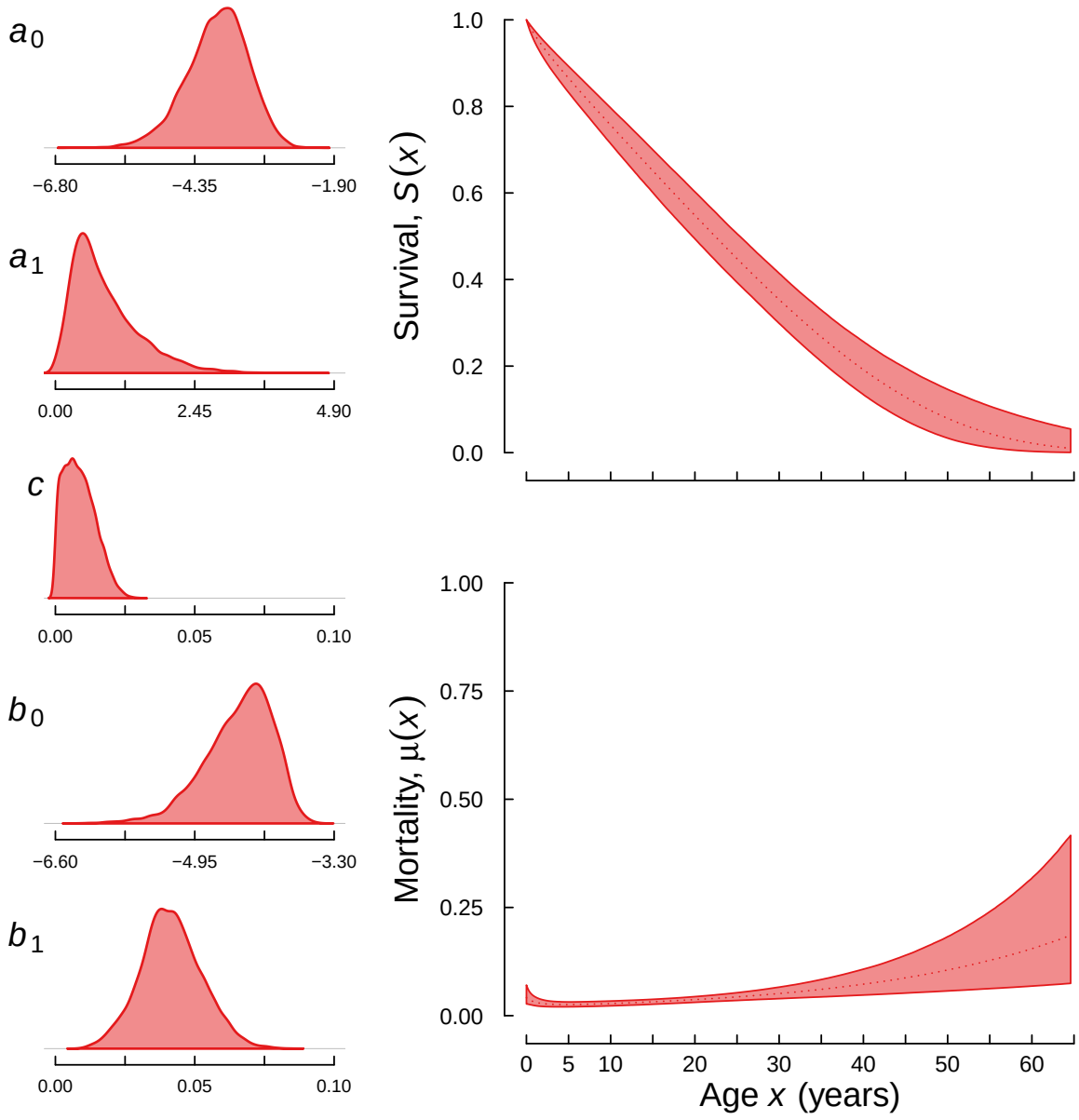

Figure S3: **Gompertz model with bathtub modification hazard and survival curves and posterior distributions fit to the NARW data.** Posterior distributions (left panels), and survival and hazard functions (right panels), of the best fitting model (Gompertz with bathtub modification) fit to the NARW mark-recapture time series.