

Supplementary Table 3. Key equations and differences between the Beaufort Assessment Model (BAM) and Stock Synthesis (SS) bias adjustment of recruitment. $MedianR0$, $MeanR0$, $Medianh$, and $Meanh$ in the equations represent median-unbiased $R0$, mean-unbiased $R0$, median-unbiased h , and mean-unbiased h , respectively. Median-unbiased $R0$ and median-unbiased h correspond to the geometric mean curve of recruitment while mean-unbiased $R0$ and mean-unbiased h correspond to the arithmetic mean curve of recruitment. BAM uses median-unbiased estimates of spawner-recruit parameters while SS uses mean-unbiased estimates of spawner-recruit parameters for bias adjustment.

Equilibrium recruitment

E3.4
$$R_{eq} = \frac{MedianR0 \times (4 \times Medianh \times \phi_F - (1 - Medianh)\phi_0)}{(5 \times Medianh - 1)\phi_F}$$

E3.4_median-unbiased
$$R_{eq} = \frac{MedianR0 \times (e^{\sigma_R^2/2} \times 4 \times Medianh \times \phi_F - (1 - Medianh)\phi_0)}{(5 \times Medianh - 1)\phi_F}$$

E3.4_mean-unbiased
$$R_{eq} = \frac{MeanR0 \times (4 \times Meanh \times \phi_F - (1 - Meanh)\phi_0)}{(5 \times Meanh - 1)\phi_F}$$

Predicted recruitment

E4.1
$$N_{1,y} = R_y e^{Rdev_y}$$

E4.1_median-unbiased
$$N_{1,y} = R_y e^{Rdev_y}$$

E4.1_mean-unbiased
$$N_{1,y} = R_y e^{Rdev_y - \sigma_R^2/2}$$