

Supplementary Table 2. Key equations of initial population at age computation and differences between operating models in case 0 and case 12. In case 0, the initial equilibrium recruitment (R_{eq}) in the operating model is lowered from the unfished recruitment level as determined by an initial equilibrium fishing mortality. In case 12, the initial condition was set to the unfished equilibrium population to match the approach used in the Assessment Model for Alaska.

ϕ_F =spawning biomass per recruit based on F ; ϕ_0 =unfished spawning biomass per recruit;

R_0 =unfished recruitment; h =steepness.

Case 0

E3.4

$$R_{eq} = \frac{R_0 \times (4 \times h \times \phi_F - (1 - h)\phi_0)}{(5 \times h - 1)\phi_F}$$

ϕ_F is computed based on F in model year 1, so $\phi_F < \phi_0$ and $R_{eq} < R_0$

Case 12

E3.4_C12

$$R_{eq} = \frac{R_0 \times (4 \times h \times \phi_0 - (1 - h)\phi_0)}{(5 \times h - 1)\phi_0}$$

$$R_{eq} = R_0$$