Review of literature for state-space assessment project

**2014, Nielsen & Berg, *Estimation of time-varying selectivity in stock assessments using state-space models*, Fisheries Research.**

Define selectivity at age a in year y as Sa,y = Fa,y / suma(Fa,y)

Explored four different structures on Fa,y:

(A) Equal and constant F’s

(B) Uncorrelated F’s (rho = 0)

(C) A single, identical correlation for all ages (rho = x, termed compound symmetry)

(D) Correlation between ages is an AR(1) function of difference between ages (rho = x|age diff|)

Process variance in F was held constant across ages and time. The correlation between F’s across ages was varied.

Simulation tested using north sea cod case (N = 100). And a north sea cod case study.

Simulation test suggests the model is able to capture the data-generating model (Fig 2).

Model D was best according to AIC (time-varying selectivity that is correlated according to an AR1 process over ages).

Large differences in terminal year SSB and F depending on correlation structure.