

Recruitment Variability in Simulation Projections

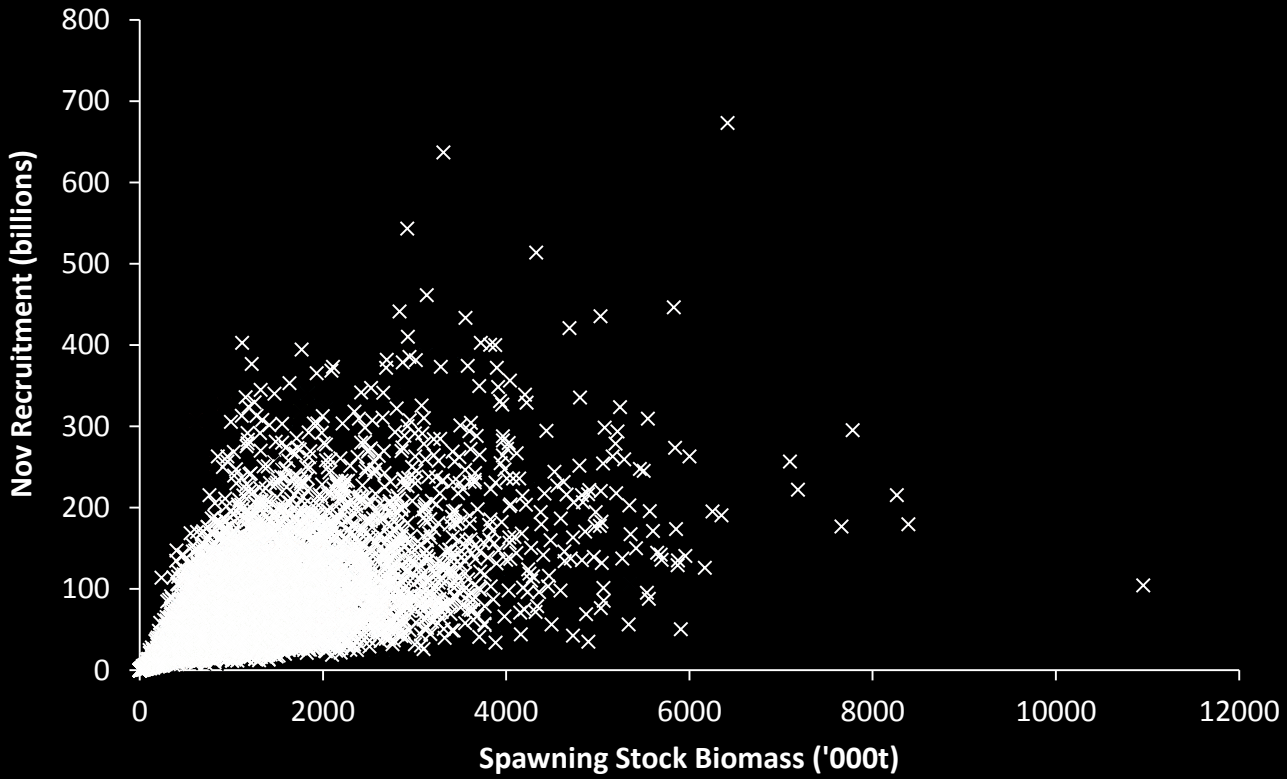
SPSWG Meeting
25th February 2015

Carryn de Moor



Marine Resource Assessment and Management Group (MARAM)
Department of Mathematics and Applied Mathematics
University of Cape Town

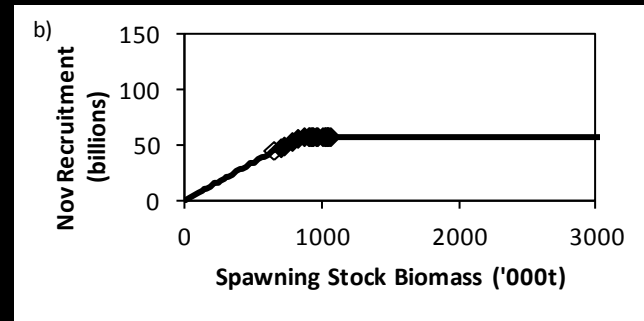
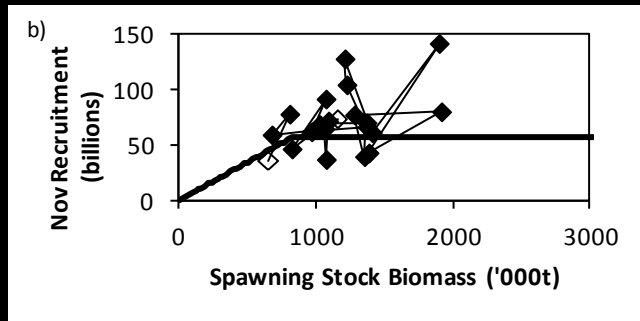
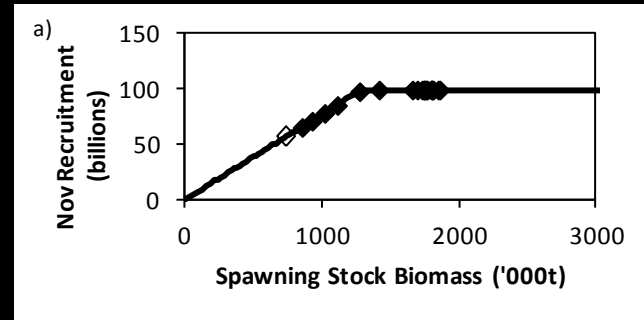
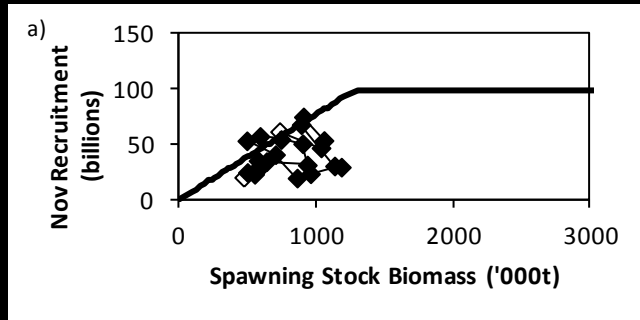
Simulated Future Recruitment



Simulated Future Recruitment

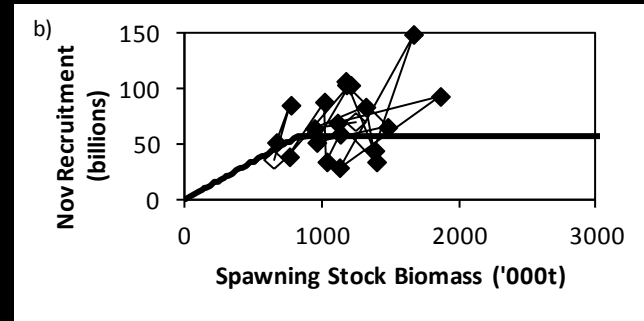
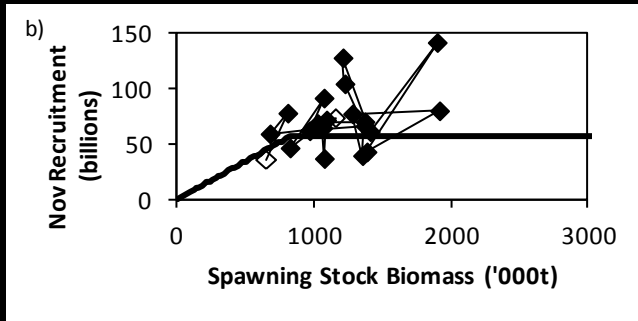
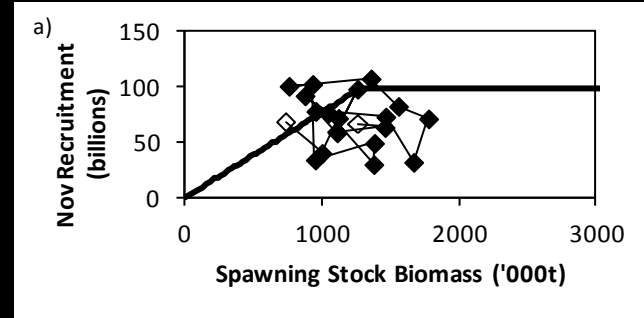
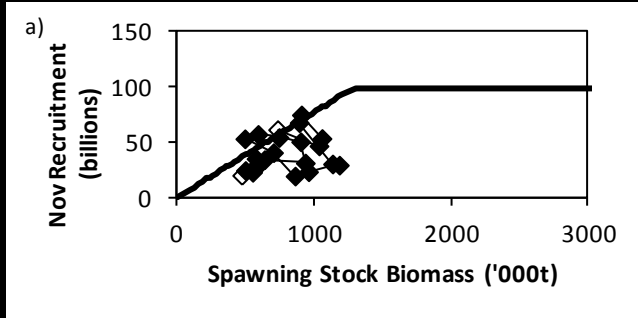
- Depends on:
 - model predicted spawner biomass
 - stock recruitment relationship
 - error about stock recruitment relationship with associated autocorrelation

Error about stock recruitment relationship



- 1000 simulated projections use 1000 different S-R curves.
Two such curves are shown above, with similar SSB starting values.
- closer to inflection point in b)
 - higher maximum recruitment in a)

Stock recruitment relationship

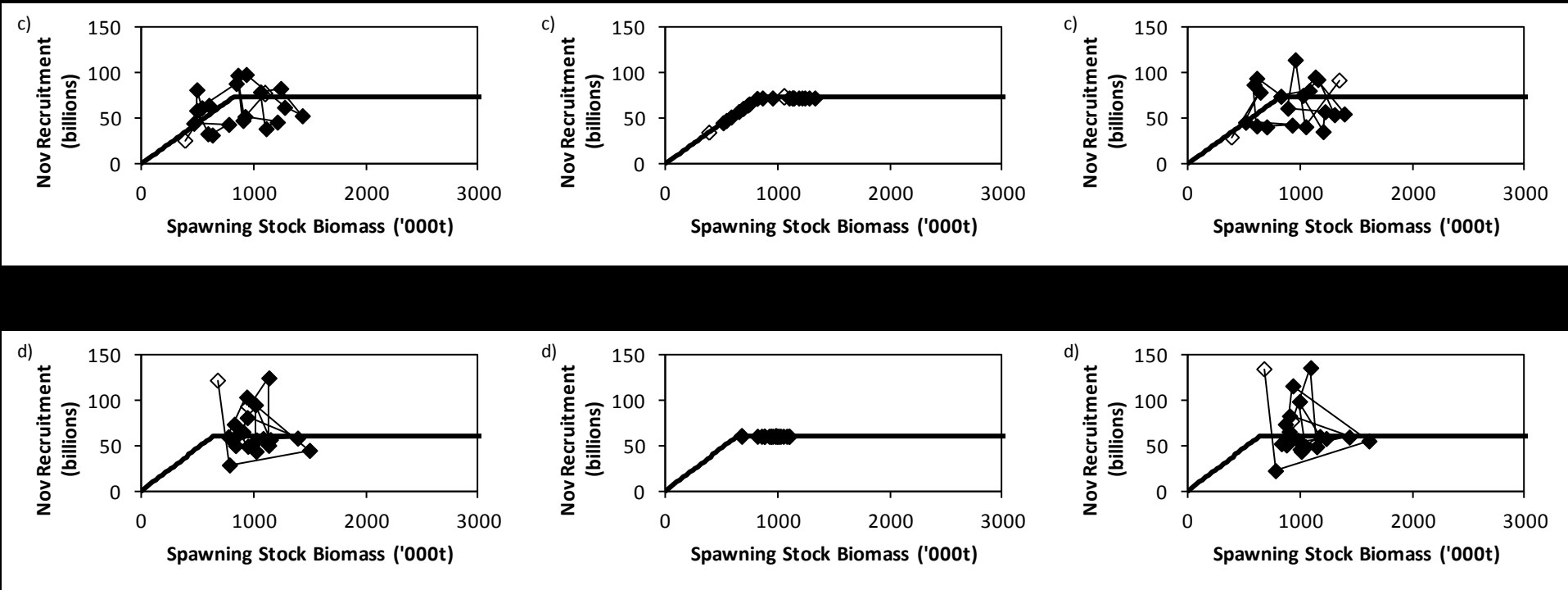


Similar starting points

Baseline

Excluding autocorrelation

Starting point



Similar stock recruitment relationships

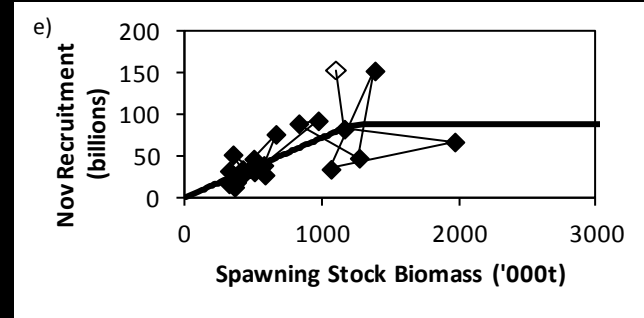
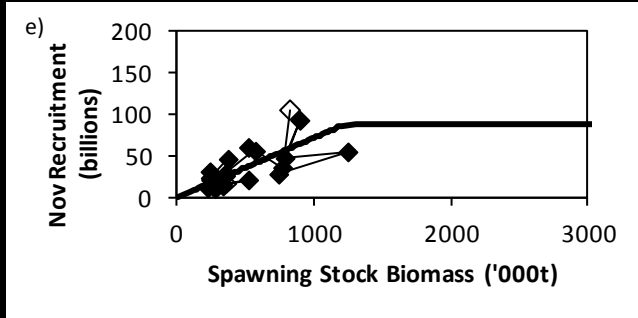
Lower initial starting point – takes longer in absence of error to reach max recruitment

Baseline

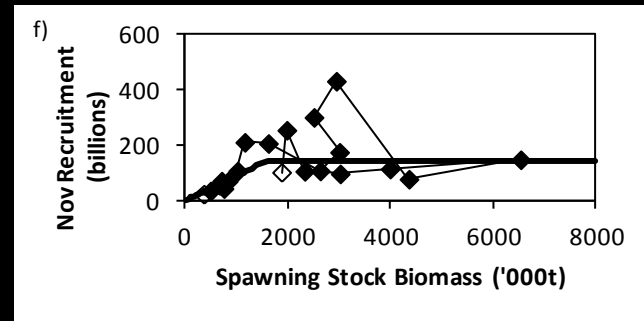
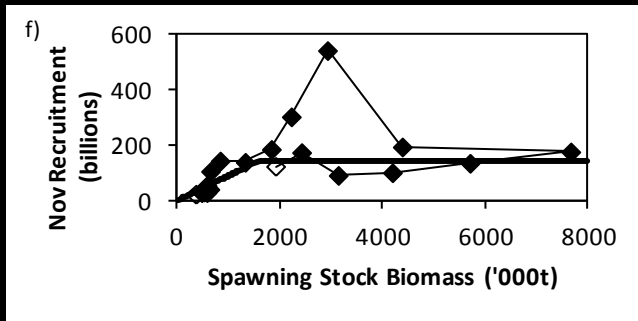
No error

Excluding autocorrelation

Autocorrelation



$$\rho=0.64$$

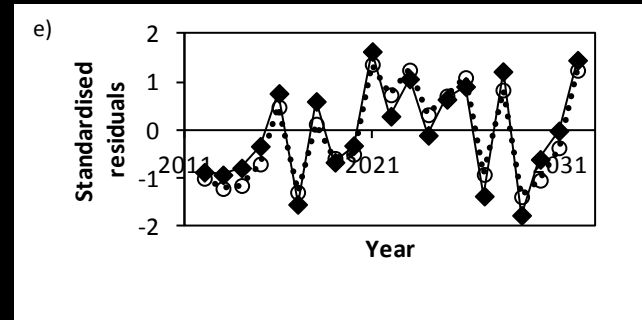
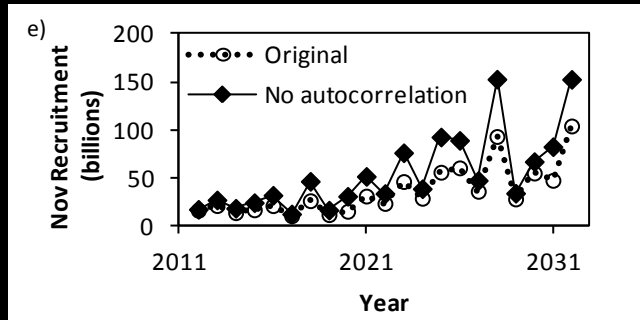


$$\rho=0.60$$

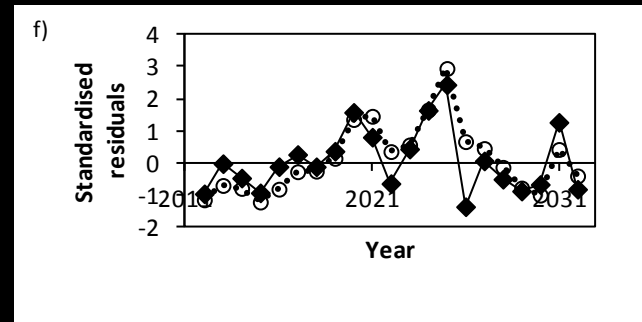
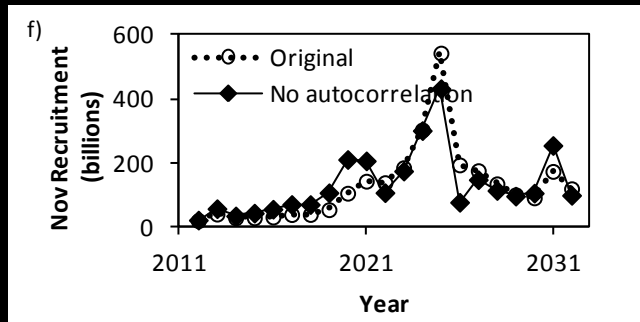
Baseline

Excluding autocorrelation

Autocorrelation



$$\rho=0.64$$



$$\rho=0.60$$

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Thank you for your attention