

## Further projections using the environmental movement scenario and a random movement scenario

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Figure 1 shows the historically estimated and future projected 90% probability intervals of the proportion of “west” stock recruits moving to the “south” stock, where the projections are determined by the movement model *MoveE* (Figure 2 of WP1). All projections assume no future catch.

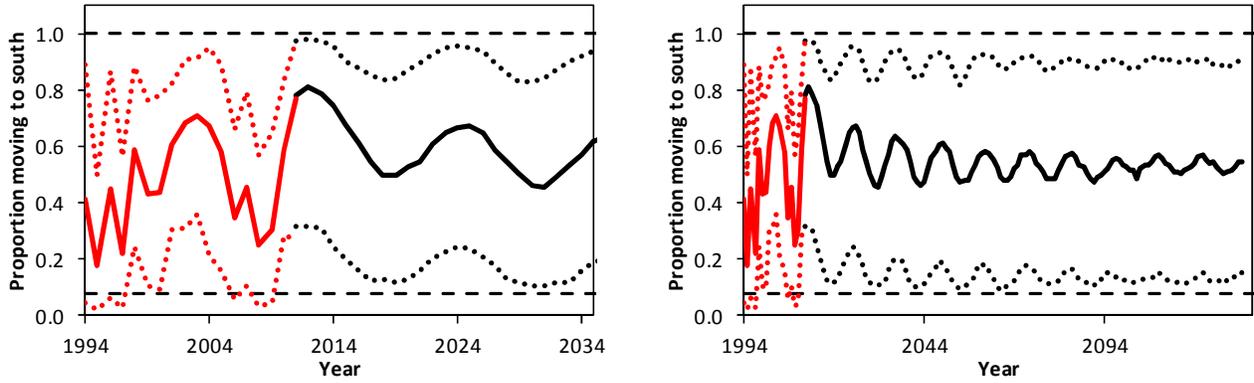
Figure 2 shows the corresponding projected 1+ biomass distributions.

Figures 3 and 4 are a repeat of Figures 1 and 2, but assuming the period between “environmental switches” is 5 – 15 years, following discussions during the workshop. These projections are more pessimistic than the original ones, primarily because of the increasingly high movement estimated in the first few years of projection.

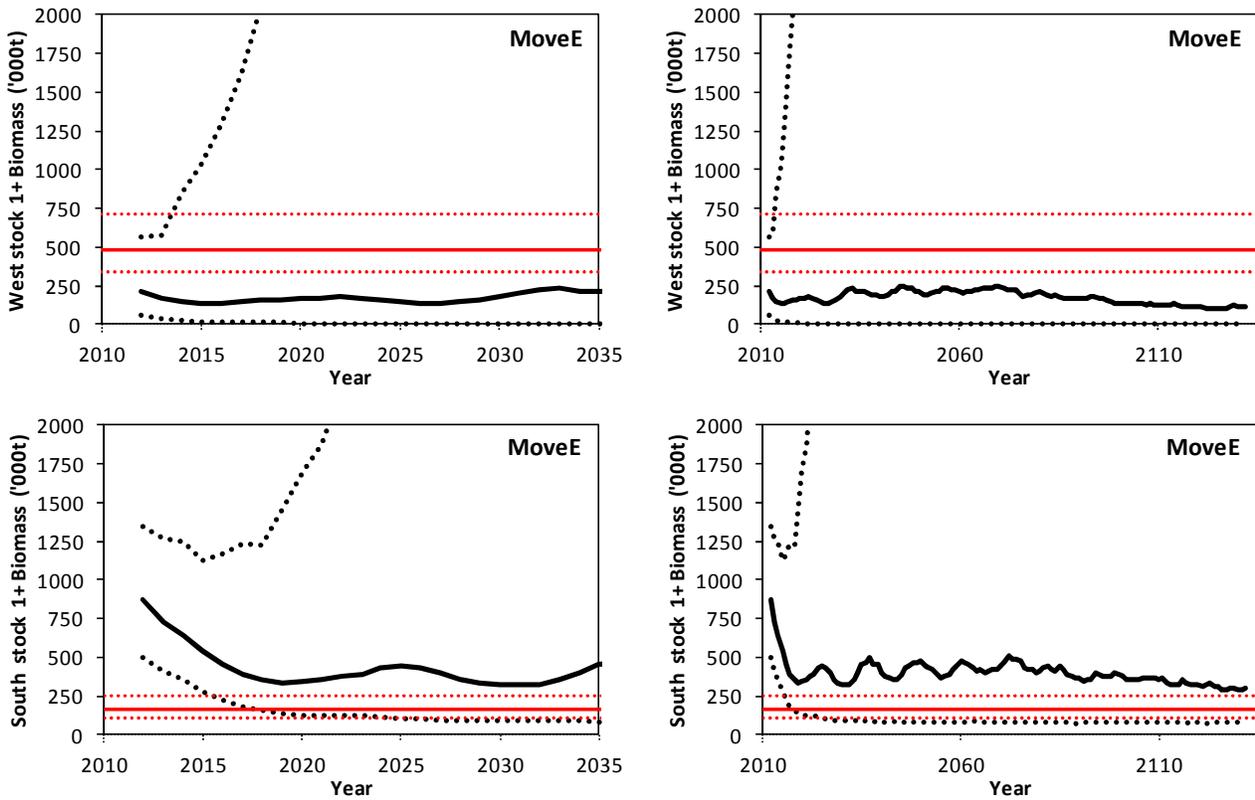
Figures 5 and 6 are a repeat of Figures 1 and 2, but assuming future movement is drawn randomly from the median values of the posterior distributions of the 18 years of movement estimated by the assessment model. Median recruitment immediately decreases from its value in 2011 to 0.45-0.46 from 2011 to 2135, thereby predicting that the “west” stock median trajectory increases over time.

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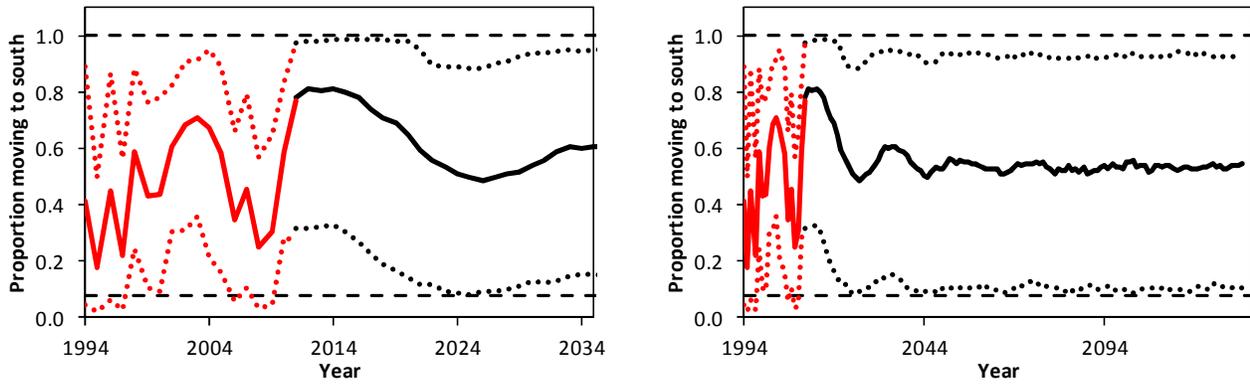
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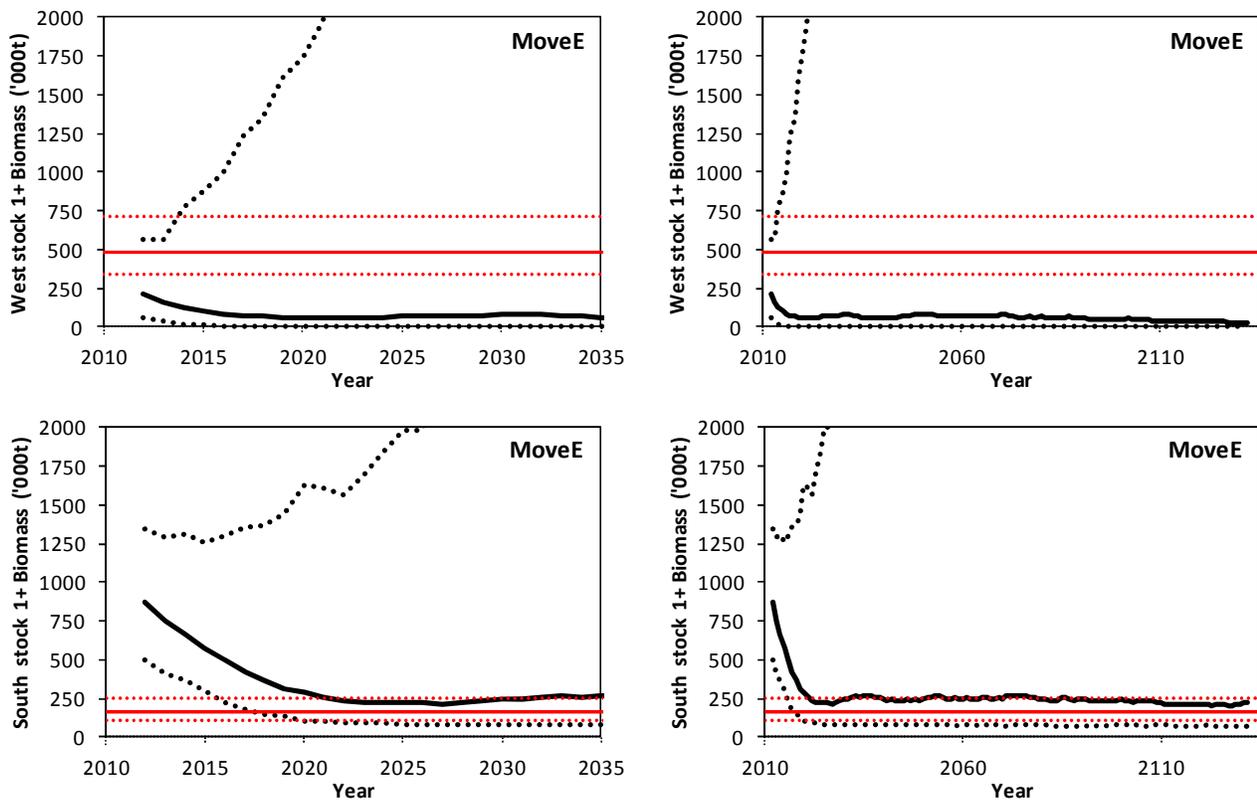
**Figure 1.** The median and 90% probability interval of model estimated proportions of “west” stock recruits moving to the “south” stock (red) and the median and 90% probability interval of future projected proportions moving under a no catch scenario, assuming *MoveE* (black). The horizontal dashed lines indicate the equilibrium values of 1.000 and 0.076. The plot to the left shows the first 20 years of projection, while the plot to the right projects for 120 years.



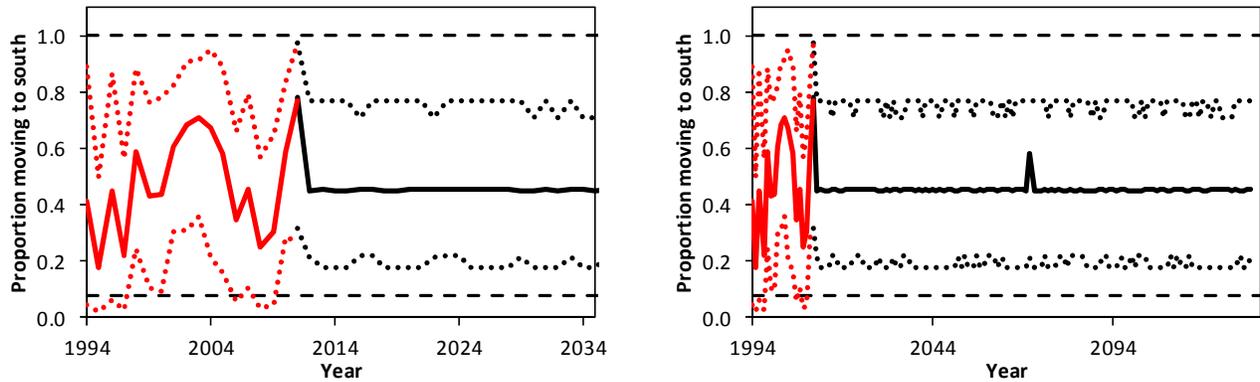
**Figure 2.** The median and 90% probability interval of model estimated November 1+ biomass for the “west” stock (upper plots) and “south” stock (lower plots) under a no catch scenario, assuming *MoveE*. The plots to the left shows the first 20 years of projection, while the plots to the right projects for 120 years.



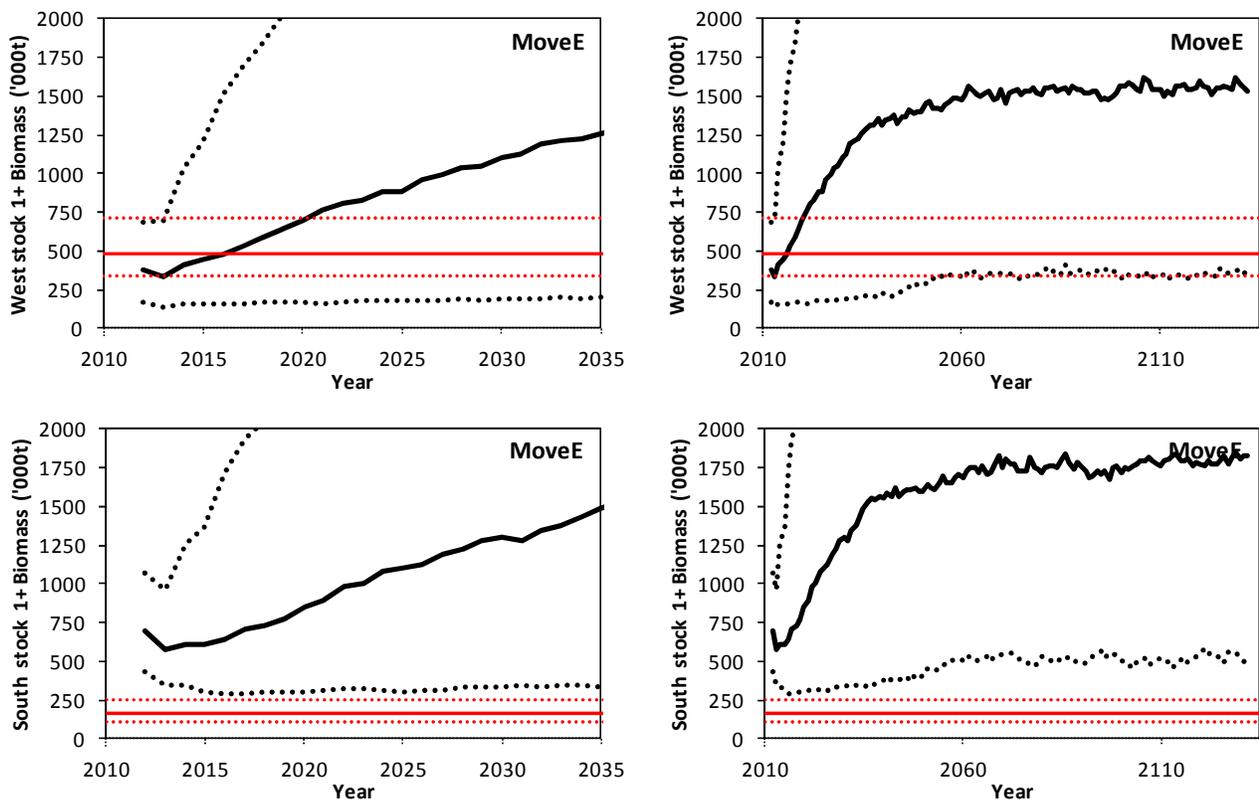
**Figure 3.** As for Figure 1, but assuming that the “environmental switches” occur between 5 – 15 years.



**Figure 4.** As for Figure 2, but assuming that the “environmental switches” occur between 5 – 15 years.



**Figure 5.** As for Figure 1, but assuming that the future movement is drawn randomly from the 18 historic median proportions of movement estimated by the assessment model.



**Figure 6.** As for Figure 2, but assuming that the future movement is drawn randomly from the 18 historic median proportions of movement estimated by the assessment model.