Sardine Stock-Recruit Relationships

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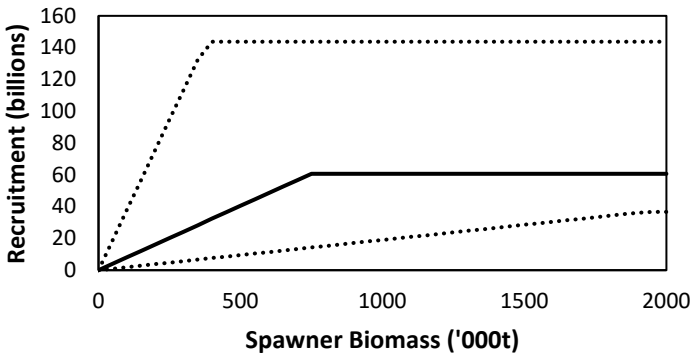
This brief document shows the difference in the range of the stock-recruitment relationships between the Operating Model (OM) used to develop OMP-14 and those to be used to develop OMP-17. The relationships are, however, not directly comparable as spawner biomass is not directly comparable between the two OMs. Sardine spawner biomass was defined as 2+ biomass in the OMs used to develop OMP-14, while the new OMs use maturity-at-length.

These plots show hockey-stick stock recruitment relationships with the following inflection points:

i) The median maximum recruitment and median spawner biomass below which recruitment is impaired.
ii) The 2.5%ile median maximum recruitment and 97.5%ile spawner biomass below which recruitment is impaired.
iii) The 97.5%ile median maximum recruitment and 2.5%ile spawner biomass below which recruitment is impaired.

Thus the lines plotted do not reflect the median and 95%ile exactly, but give an idea of the range. In addition, course grids are used to do the plotting, and thus the lines do not accurately reflect the points i) – iii) above.

2012 Single sardine stock OM, which assumed sigmaR=0.45 and no difference in the median recruitment during peak years:



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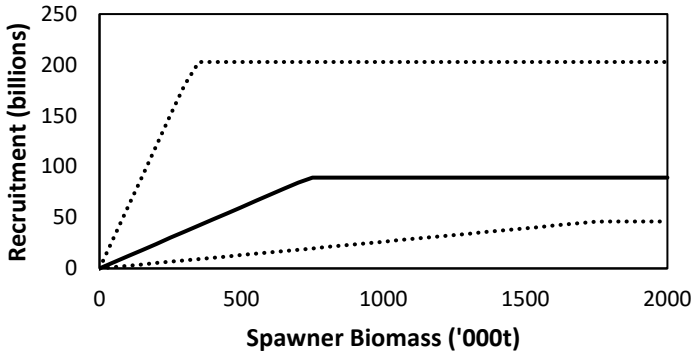
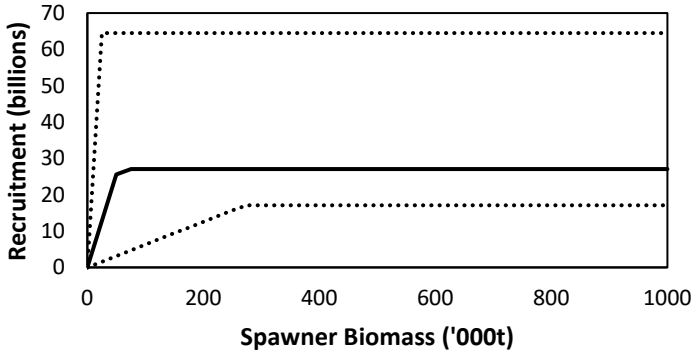
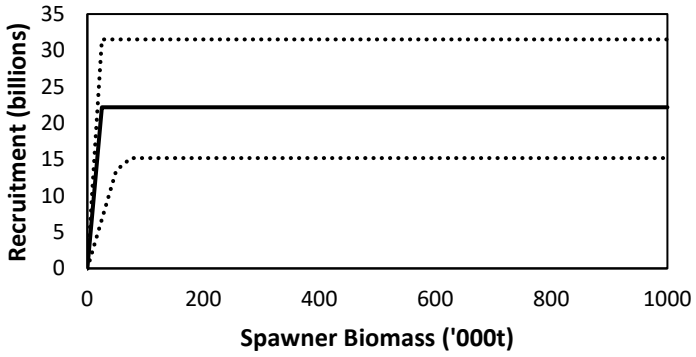
2012 Sardine West Component OM, which assumed sigmaR=0.5 and no difference in the median recruitment during peak years



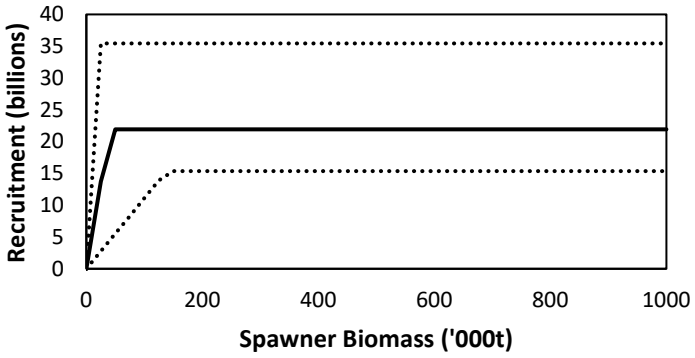
2016 Sardine West Component OM, which assumed sigmaR=0.5 and difference in the median recruitment during peak years, and 0% south coast recruits contributing to west coast recruitment



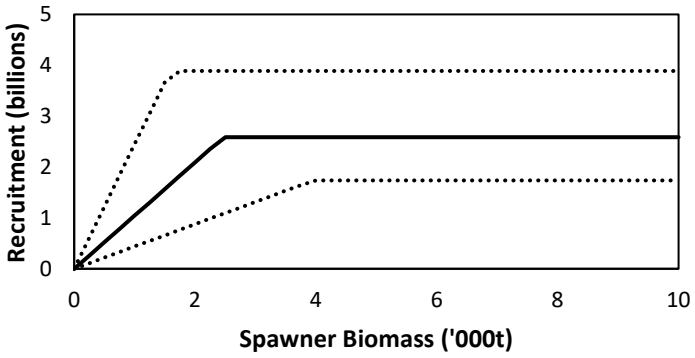
2016 Sardine West Component OM, which assumed sigmaR=0.5 and difference in the median recruitment during peak years, and 8% south coast recruits contributing to west coast recruitment



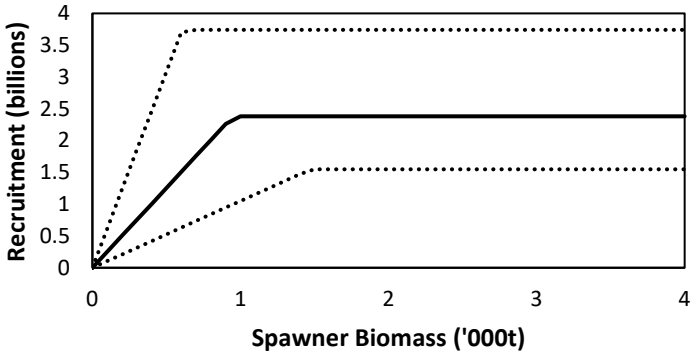
2016 Sardine West Component OM, which assumed sigmaR=0.5 and difference in the median recruitment during peak years, and 30% south coast recruits contributing to west coast recruitment



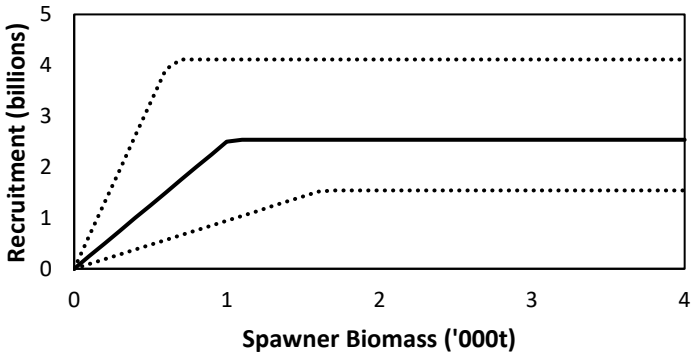
2012 Sardine South Component OM, which assumed sigmaR=0.5 and no difference in the median recruitment during peak years



2016 Sardine South Component OM, which assumed sigmaR=0.5 and difference in the median recruitment during peak years, and 0% south coast recruits contributing to west coast recruitment



2016 Sardine South Component OM, which assumed sigmaR=0.5 and difference in the median recruitment during peak years, and 8% south coast recruits contributing to west coast recruitment



2016 Sardine South Component OM, which assumed sigmaR=0.5 and difference in the median recruitment during peak years, and 30% south coast recruits contributing to west coast recruitment