Scenarios for Runs of the western South Atlantic Humpback Whale Assessment Model, October 2018.

Modeling Scenarios

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Scenario | Absolute Abundance(s) | Target Year | Growth rate estimate | Indices of Abundance | Modern Whaling Catches | Pre-Modern Whaling Catches | Struck and lost rate | Genetic Constraint | Recent Anthropogenic Mortality | Observations |
| *Input data* |  |  |  |  |  |  |  |  |  |  |
| Reference | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Core | None | None | No | None | This scenario assumes 2008 as the target year and trend comes from fitting the two absolute abundance estimates. No pre-modern whaling catches. |
| SData 1 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2012 | No | None | Core | None | None | No | None | This scenario assumes 2012 as the target year and trend comes from fitting the two absolute abundance estimates. It’s identical to Scenario 1. The purpose is to assess whether there are differences in the model outputs if the target year is set to 2012. |
| SData 2 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | Pavanato et al., 2017 | Core | None | None | No | None | This scenario is identical to scenario 1, but includes trend estimation from Pavanato et al., 2017. Assess the effect of the additional estimate of trends in abundance in the model parameters. |
| SData 3 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | Wedekin et al., 2017 | Core | None | None | No | None | This scenario is identical to scenario 1, but includes trend estimation from Wedekin et al., 2017. Assess the effect of the additional estimate of trends in abundance in the model parameters. Interesting to check how much it differs from scenario 3. |
| *Catches* |  |  |  |  |  |  |  |  |  |  |
| SCatch 1 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Core + Falkland | Morais et al., 2017 | None | No | None | This is scenario 1, but just adding the Falkland catches. Assess the effect of these catches in the model outputs |
| SCatch 2 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Fringe | Morais et al., 2017 | None | No | None | This is same as scenario 1, but with the Fringe catches. Assess effect of assuming the Fringe hypothesis in the model outputs. |
| SCatch 3 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Overlap | Morais et al., 2017 | None | No | None | This is the same as scenario 1, but with the Overlap catches. Assess effect of assuming the Overlap hypothesis in the model outputs. |
| S Catch 4 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Core | Morais et al., 2017 | None | No | None | Same as scenario 1, but adding the pre-modern whaling catches. Assessing effect of these catches in the model outputs. |
| S Catch 5 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Core | Morais et al., 2017 | - Pre-modern whaling: correction factor is N(1.71, 0.073),  - Modern whaling prior to 1939: some distribution with a 5% probability that the SLR is greater than 13.9%. If we need an upper bound on that use 30%. We convert the SLR as 1/(1-%SLR), so for the period pre 1939, the correction factor should be a distribution with a 5% probability that the value of the correction factor is greater than 1.16 and it is truncated at 1 and 1.42  - 1939-1945: The correction factor for the period 1939 to 1945 should be U(1.25, 1.42).  - For the period after 1945, the correction factor should be N(1.0185, 0.0028). | No | None | This scenario is identical to scenario 1, but includes SLRs. |
| *Genetic constraint* |  |  |  |  |  |  |  |  |  |  |
| GC 1 | N(2008)=14264, CV=0.08 and N(2012)=20389, CV=0.07 | 2008 | No | None | Core | None | None | Yes, value of 66 \* 3 (not 4 as in the original paper) = 198. | None | Similar to Scenario 1 but with a lower limit on the minimum population. Testing the effect of the genetic constraint in the model outputs. |