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Standardised CPUE series of the Alfonsino (Beryx splendens) resource in the SIOFA area of the Southern Indian Ocean

Relates to agenda item: 7.3 Working paper

Anabela Brandão and Doug S. Butterworth

Abstract

Results for the standardisation of the Alfonsino CPUE data available for the SIOFA area of the Southern Indian ocean are given for three sets of data available, with each split into "West" and "East" management areas and standardised separately. Different GLMs are selected for each, based primarily on whether or not a zero catch inflated model is appropriate. Two zero inflated models are considered: the Hurdle-Negative Binomial (Hurdle-NB) model and the Zero Inflated Negative Binomial (ZINB) model. A Negative Binomial (NB) model is applied when the number of zeros observed is not large, and a Quasi-Poisson model is also fitted to show the sensitivity of the results to the use of a different model. The AIC criterion is used to select the covariates to be included in the models as well as to determine the if the levels of some of the factors could be aggregated to reduce the number of parameters being estimated. In AIC terms, the Hurdle-NB model performs slightly better than the ZINB. Three sensitivity tests are performed that attempt to address some uncertainties in the data. Standardised CPUE values for the series obtained that might be used in stock assessment, except for S2 "East" (for which there are very few data). Adjusting for bycatch results in a very slight downward trend in the more recent years instead of an upward trend for S1 "West", and eliminates the estimated high peak in 2011 for S3 "West". Omitting the earlier years of data in cases where there are large gaps of missing years has minimal effect on the standardised CPUE values. Omitting trawls of very short duration in the S3 series to adjust for possible opportunistic behaviour results in a downward instead of an upward trend from 2010 to 2013.