Outline

January 6, 2015

1 Why are we doing this work ? why is this topic important ? Think about the key question you and your audience might have

- The purpose of stock assessment is to estimate mortality rates

- The central model is an exponential decay (Baranov model)

- Likelihood approach have been widely used to estimate parameter. It is central to the integrated approach (CITE)

- Likelihood approach requires one to look at problems from a statistical perspective

- Given that statistic were embraced for the likelihood, it is interesting to see that the statistical counterpart of the exponential decay, in the name of the exponential pdf, was never used.

- The branch of statistics specializing in estimating mortality rates is known as survival analysis.

- Survival analysis is widely applied to medical research

- This paper describes an application of survival analysis to the analyse of catch at age

2 Results

- Likelihood of catch at age

- Ability to estimate parameter from data matrices with $n < p$

3   Detailed content of the article

1. Introduction

- (CITE) used a statistical approach to catch at age analysis assuming these data were distributed according to a multinomial distribution. While this model recognise the presence of multiple age-groups in the data, it fails to account for properties associated with the Baranov equation such as for example that the proportion of individual surviving through time is a declining function of time.

- Multinomial model

- Baranov model

2. Materials and methods

2.1 Likelihood method

- very simple case on a single cohort

- estimating M, q and selectivity on a single cohort

- Multiple cohorts and the separability hypothesis

- Estimator of recruitment

2.2 Simulations testing

- The datasets

- Data uncertainty

2.3 Application to a case-study

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3. Results
3.1 Simulation testing

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3.2 Case-study

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4. Discussion

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4 Title

Yet another general theory for the analysis of catch at age
5. Citations

- On the other hand, if it is the parameters of a selectivity function that are estimated (rather than the individual selectivities), it is possible to estimate the natural mortality rate internally with the model studied here even when fishing mortality is constant, and with deterministic data the estimate is of course correct if the function is correctly specified.... The resulting estimate of the natural mortality rate is clearly artificial because it relies entirely on the precise shape of the specified selectivity function rather than on any information in the data. in discussion, Estimating natural mortality internally, p. 1730 - [Clark, 1999]

References

W.G. Clark. Effects of an erroneous natural mortality rate on a simple age-structured stock assessment. *Canadian Journal of Fisheries and Aquatic Sciences*, 56(10):1721–1731, 1999.