



## **Comparison of ALKs**

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Age Length Keys (ALKs) are required for sardine spawner biomass surveys and commercial landings to calculate estimates of numbers, weight and catch-at-age to be input to the upcoming assessments. There has been a change of age reader over time and in recent years there are a number of ALKs required for which age data are unavailable. Approaches will need to be developed to deal with these various difficulties.

Analyses are currently being carried out to test whether there are statistically significant differences in:

- i) survey ALKs developed by Michael Kerstan v survey ALKs developed by Deon Durholtz
- ii) the application of November ALKs from otoliths from commercial catches to survey length frequency data v the application of November ALKs from otoliths obtained on the surveys to survey length frequency data (we do not have November survey ALKs in 2000 and 2005)
- iii) the application of ALKs from November survey otoliths to commercial RLFs v the application of ALKs from otoliths from commercial catches to commercial RLFs (the only ALKs from commercial samples that we have since 2000 are for November 2000 and November 2005; in all other years and months we will need to apply some calibration of the survey ALKs)

As an example Figure 1 indicates that there are some differences between proportion-at-age in the survey when different ALKs are applied to the same length frequency data. Whether or not these differences are statistically significant (and if so, what the bias is) or whether they could merely result from sampling error still needs to be determined.

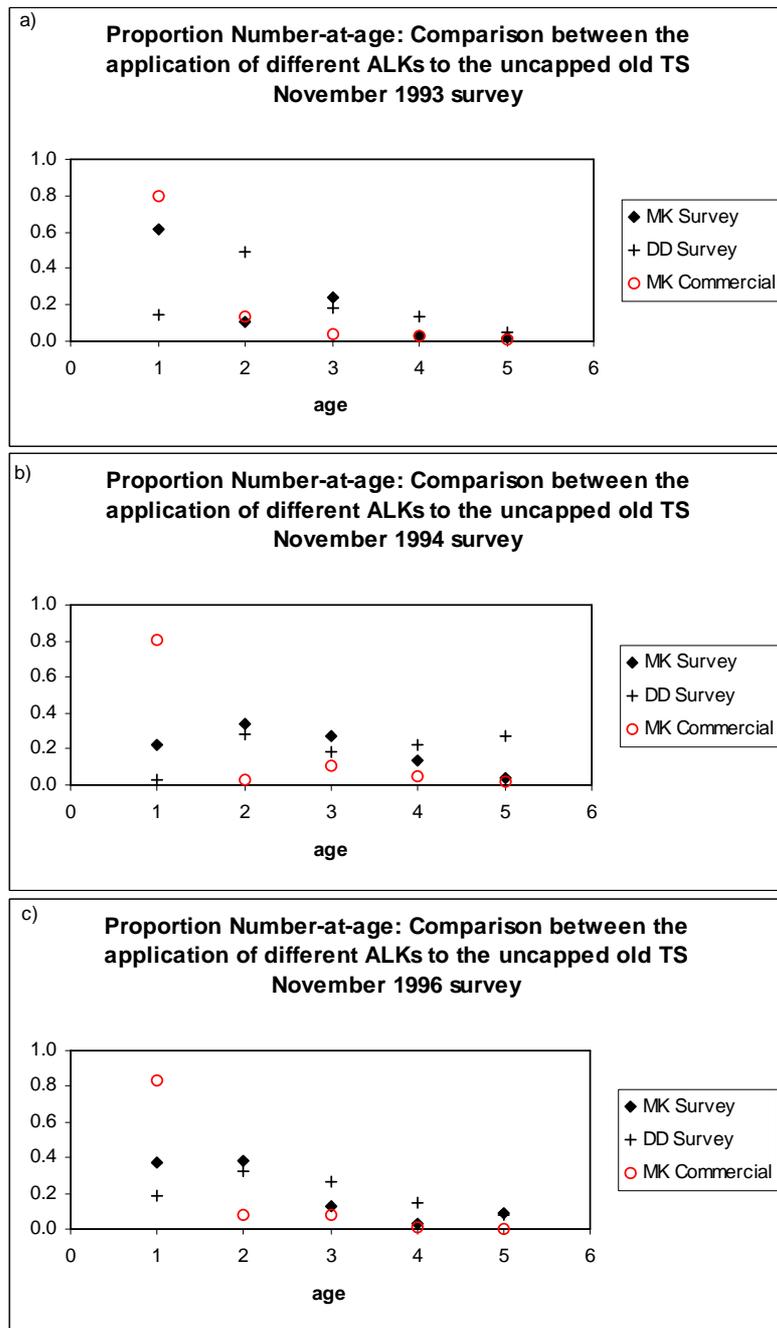


Figure 1. A comparison between the sardine proportion-at-age in the November spawner biomass surveys in a) 1993, b) 1994 and c) 1996 resulting from the application of 3 different ALKs to the same length frequency survey data. The ALKs applied in this figure are i) MK survey: the ALK from November survey otoliths read by Michael Kerstan, ii) DD survey: the ALK from November survey otoliths read by Deon Durholtz (using the same otoliths as in i)), and iii) MK commercial: the ALK from otoliths from the November commercial catches, read by Michael Kerstan.