An Analysis of the North-Sea International Bottom Trawl Survey

Abstract

The North Sea International Bottom Trawl Survey (IBTS) was started by the International Centre for the Exploration of the Sea (ICES) in 1990. Seven research vessels using standardized fishing methods participates in the survey. The survey with these vessels, which allows fishing also on rough ground provides information on seasonal distribution of stocks and abundance, which forms the basis for stock assessments for many fish stocks in the North Sea. Point estimates of abundance at age from IBTS are provided without any estimates of precision, and these parameter estimates are of little value unless they are accompanied by their uncertainty estimates. Estimates of measurement error variance of parameters relating to stock size can have a profound effect on the formulation of management policies. These measurement error estimates can be used determine adequate levels of sampling effort in terms of number of days at sea, number of primary sampling units and number of samples for age determination. Furthermore, the point estimates of abundance at age from IBTS are obtained using an age-length key (ALK) method that assumes age compositions are the same over relatively large areas: that assumption is not credible and will give bias results. We developed ALK estimators that account for the spatial variation in age-length compositions and provide estimates of uncertainty of abundance age in fish stocks in the North Sea.