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 Point estimates of abundance at age from IBTS are provided without any estimates of precision, and these should not be published or used unless they are accompanied by estimates of uncertainty. Variance estimates of parameters relating to stock size can have a profound effect on the formulation of management policies, and can be used in determining 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. The point estimates of abundance at age from IBTS are currently obtained by 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 spatial variation in age-length compositions and provide estimates of uncertainty of abundance at age in fish stocks in the North Sea.