Inter-calibration trials between the R/V Cornide de Saavedra and the R/V Miguel Oliver in bottom trawl surveys off the Spanish coast

María Soto Ruiz, Francisco Velasco Guevara, Ignacio Sobrino Yraola, Francisco Baldó, Antonio Esteban Acón, Enric Massutí

Instituto Español de Oceanografía, Spain.

Abstract

Bottom trawl surveys are conducted by the Spanish Oceanographic Institute (IEO) to provide information independent from the fisheries of commercial stocks: DEMERSALES in the northern Spanish Shelf, ARSA in the Gulf of Cadiz and MEDITS in the Mediterranean Shelf since 1983, 1993 and 1994, respectively. Surveys have been performed annually on board the R/V Cornide de Saavedra until 2013. This vessel (67 m, 1133 GRT) was built in 1972 and nowadays has been replaced by the new R/V Miguel Oliver (70 m, 2495 GRT). To guarantee the continuity between the two vessels of the abundance and biomass indices of the main target species and their length distributions, inter-calibration experiments have been performed for each of the three bottom trawl surveys. The goal of the inter-calibration between both vessels was to establish the most similar fishing conditions to detect and isolate if there was a vessel effect that caused different results in catches. And in if those differences were significant, to estimate calibration coefficients to homogenize abundance and biomass indices of the new vessel R/V Miguel Oliver with respect to the time series built with the old R/V Cornide de Saavedra.

The inter-calibration experiment consisted in performing parallel tows with both vessels, using the same gear, and carrying out hauls of the same duration and speed. The parallel surveys in the V/R Cornide de Saavedra and the R/V Miguel Oliver followed the surveys protocols of IBTS for the northern Spain and Gulf of Cadiz and MEDITS for the Mediterranean. A total of 60 paired hauls were completed in the DEMERSALES survey, 43 for the ARSA and 37 hauls in the MEDITS. Comparisons between both vessels were done in each survey addressing: gear performance, total catch, commercial species catches, length distributions of the most representative species and analyzing the faunal fish assemblages detected.

Differences between vessels were less significant for the DEMERSALES survey, with the higher catches, number of hauls and less variability; in the Gulf of Cadiz, catches of flatfish and some species of cephalopods were slightly higher in the R/V Miguel Oliver but no significant differences in the length distributions were found; for the MEDITS survey, catches by haul were lower, presenting a great diversity of species, thus complicating to separate the sources of variability due to the change of vessel from the uncertainty associated to the hauls.

In general, catches in the R/V Miguel Oliver are similar to catches in the R/V Cornide de Saavedra. To verify the continuity and congruence of the time series special attention must be paid to the new surveys in the R/V Miguel Oliver to test if inter-calibration factors are needed for some species.