

Modeling length distribution by commercial size category to estimate species catch length composition for stock assessment

Azevedo M., Silva, C., Vølstad J.H.

Commercial catch or landings length compositions are one of the primary data for stock assessment. For many European commercial stocks, the landings length compositions are the only data available to characterize the size structure of exploited fish stocks while for other stocks these data are used along with estimates of age-at-length to convert the length compositions to catch-at-age. In Europe, there is a requirement for fishery products of several species to be graded on the basis of size categories. In Portugal, fish are landed and sold at auction in boxes with fish of uniform size and labelled with the fish size category. In this study the length distribution by commercial size category is modelled using onshore biological sampling data. The annual catch length composition by species is estimated based on the modelled size-categories applied to the landings weight by size category for all year trips of two important Portuguese commercial species, hake and horse-mackerel. The Portuguese annual landings length composition of these stocks is currently estimated by raising the length samples to trip landings, and then to port and region, by fleet and quarter. The length composition of hake is based on a good sampling coverage of all landed categories. It is shown that the “size-category” approach, requiring much lower sampling effort, results in similar landings length composition by fleet. In the horse-mackerel case-study, the estimated length composition with the new approach is unbiased despite the incomplete sampling coverage of all sizes caught during the year or the low number of trips sampled by fleet. The added value of this new approach is also discussed.

Keywords: commercial size categories, landings, length composition, Portugal

Contact author: Manuela Azevedo, Portuguese Institute for the Sea and Atmosphere I.P./IPMA, Av Brasília 1449-006 Lisboa, Portugal, mazevedo@ipma.pt