

## Abstract

The Northeast Atlantic (NEA) mackerel (*Scomber scombrus*) is a widely distributed pelagic fish species that plays a key role in the marine ecosystem. In recent years, there has been a large fishery targeting mackerel in the NEA. At the same time as the geographic range of the mackerel fishery has expanded and the spatial distribution of the stock been defectively determined, the stock assessment has been considered to be highly uncertain by ICES. Limited tuning data, with only a triennial egg survey, have created challenges for the assessment and management of NEA mackerel, and ICES has repeatedly stated the need for an annual age-disaggregated abundance index of this stock. These were the motivations for establishment of an international pelagic trawl survey in 2007, the International Ecosystem Summer Surveys in the Nordic Seas (IESSNS). The estimated total biomass indices for NEA mackerel based on coordinated and standardized swept-area surface trawling in July–August from IESSNS increased from 1.96 million t [relative standard error (RSE) = 30.35%] in 2007 to 8.77 million t (RSE = 7.95%) in 2014. Simultaneously, the mackerel stock expanded its geographic range during the feeding season from 1.3 million km<sup>2</sup> in 2007 to at least 2.9 million km<sup>2</sup> in 2014, mainly towards western and northern regions of the Nordic seas. Estimates of abundance indices by age group were fairly precise (RSE ≈ 20%) for ages 3–12, while the precision was poorer for ages 1 and 2 and for age groups 13 and older (RSE > 50%). Furthermore, evaluation of the performance of the estimated abundance indices by age for this time-series, based on internal consistency and catch curves, suggest that the abundance indices of ages 3–12 track the temporal variation in abundance reasonably, and thus is applicable for stock assessments.

## Ref.:

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