



Robust estimation of acoustic abundance indices

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Abstract

In Northwest Africa, pelagic fisheries are a key economic sector. However, the scientific community is struggling to make satisfactory assessments of important pelagic species such as sardinella, due to the absence of relevant indices of abundance to adjust stock assessment models. The present work describes a new geostatistical method applied to acoustic data to estimate a new acoustic index based on the semi-quantitative modeling of acoustic densities. Acoustic energy is divided into binomial variables representing zero, low, medium, large and very large densities. A multidimensional geostatistical approach makes it possible to (i) map the spatial distribution of density classes and (ii) compute a new acoustic index of abundance for *Sardinella aurita*. The data used in this work are those of the Fridtjof Nansen research vessel surveys and the Mauritanian research vessel Al-Awam (2007-2010). The results obtained on the distribution of sardinella show a strong distribution of acoustic densities from one year to the next. The indices of abundance defined in this work were tested in the fit of an overall stock assessment model of round sardinella.



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Extended book of Abstract

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