

MOVIES-B: an acoustic detection description software. Application to shoal species' classification

Software, MOVIES-B, developed by IFREMER (Institut français de recherche pour l'exploitation de la mer), enables the recognition of echogram features as acoustic detection structures according to spatial-energetic contiguity criteria. These structures (shoals, plankton layers) are described by energetic, morphological, spatial and temporal descriptors. Specifying acoustic detections as individual shoals will allow shoal by shoal echo-integration and may lead to better biomass estimation and shoal species description. The conceptual and operational framework of MOVIES-B is presented in the first part of this paper. The second part presents preliminary work performed in order to assess the feasibility of classification and possible species identification of shoals using MOVIES-B software. This research has studied the data set obtained from four fisheries acoustic surveys, in the Bay of Biscay. The data set is a matrix of 29 descriptors from 13,122 shoals. A limited knowledge of species composition was obtained from trawling. Eight species were captured: *Sardina pilchardus*, *Clupea harengus*, *Sprattus sprattus*, *Engraulis encrasicolus*, *Micromesistius poutassou*, *Trachurus* sp., *Scomber* sp. and *Capros aper*. Cluster analysis and linear discriminant analysis were performed on trawled identified shoals data (808 shoals), after a reduction of the space descriptors by a stepwise technique. A partition into 6 clusters was carried out and clusters are described by species composition and continuous variables values. After grouping the six species shoals in two groups, 84% of shoals from the testing data set could be correctly classified using the linear discriminant function.

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Obtenir le document : EDP Sciences

Mots clés : Echo-integration, fish shoal, fisheries acoustics, statistical analysis, clustering analysis, Echo-intégration, banc de poissons, acoustique halieutique, analyse statistique, classification hiérarchique

Date : 2007-02-15

Format : text/xml

Source : <https://doi.org/10.1051/alr:1993026>

Langue : Anglais

Télécharger les documents : <https://www.alr-journal.org/10.1051/alr:1993026/pdf>

Permalien : <https://www.documentation.eauetbiodiversite.fr/notice/movies-b-an-acoustic-detection-description-software-application-to-shoal-species-classification0>

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