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Despite the increasing use of acoustic cameras in fish ecology and fisheries studies, the quantification of biases associated with this method have received little attention. In this note, we used data collected from an ARIS acoustic camera, positioned in a channel linking a lagoon to the sea, to quantify differences in European eel (*Anguilla anguilla*) counts and size estimates made by two experienced operators. Count estimates made from 58 videos were highly consistent between the two operators ($R^2 = 0.99$), although statistically different. Compared to the known sizes for the 82 eels, sizes estimated manually from video were underestimated. The resulting mean error percentages were significantly different between the two operators ($-3.9\% \pm 8.5$ (SD) and $-6.6\% \pm 8.9$). This error percentage was significantly influenced by the known size of the eels but not by the detection range. Our results highlighted the importance of taking into account the biases in counts and size estimates in fish ecology and fisheries studies based on acoustic cameras. These biases have to be quantified and, if possible, corrected using similar protocols as described in this study, when multiple operators analyse acoustic videos or when comparing the results from different studies.

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Obtenir le document : EDP Sciences

Mots clés : dual-frequency sonar, fish counting, hydroacoustics, migratory fish, sonar bi-fréquence, comptage de poissons, hydroacoustique, poissons migrateurs

Thème (issu du Text Mining) : FAUNE

Date : 2020-11-24

Format : text/xml

Source : <https://doi.org/10.1051/kmae/2020037>

Langue : Anglais

Télécharger les documents : <https://www.kmae-journal.org/10.1051/kmae/2020037/pdf>

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