

NEW OPEN ACCESS SOFTWARE DESIGNED FOR THE RECOGNITION OF DAILY MICROSTRUCTURES USED IN AGEING FISH

Nava, E.¹, Rey, J.², Clemente, C.¹, García, A.², Otero, P.¹ and Piñeiro, C.³

¹ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE TELECOMUNICACIÓN (ETSIT).
Universidad de Málaga. SPAIN

²I.E.O. (C.O. MÁLAGA) 29640 Málaga. SPAIN

³I.E.O. (C.O. VIGO) 36200 Vigo. SPAIN

SUMMARY

Ageing methods for most of the exploited fish species are not validated, and consequently age data series often have important gaps and uncertainty manifesting its consequences on age-based fisheries assessment.

In this communication, the research multidisciplinary team of researchers from the research fields of fisheries and engineering plans to develop a new tool designed to add efficiency in the weighty task of estimating the age of fishes based on DGI analysis. The technique is based on new computer algorithms that interpret DGI patterns, whether it be in a semi-automatic way or in such a manner that otolith readers are allowed to interact with the system or run automatically when the technique finds determined types of otolith structural patterns considered consistent and reliable. The technique, when registered, will be made available freely to the international scientific community in the open access mode. Although some image analysis software is available in the market nowadays, including some centered in otolith image processing, they all show at least two main restrictions: they do not manage 'live' images which allow to specifically focus determined microstructures at great magnification, and moreover, the high costs of the software. We present here the first results on the development of this forthcoming software which is expected to resolve the before mentioned limitations.

As soon as having ready an appropriate and affordable tool to count and measure daily growth increments in an automatic or semi-automatic way, otolith microstructure analysis can have a reliable age estimation method that can be extended and applicable to age adult fish. Although, in its present form the technique is focused in otolith microstructure analysis, further developments of the initiated software development intends to extend its application to other calcified structures, namely bivalve shells and cephalopod peaks.

KEYWORDS: otoliths, microstructure, daily growth increments, software, methods