

# マダイ硬組織内の縞形成と環境水温

Correlation between growth ring formation in hard tissues of red sea bream, *Pagrus major*, and ambient seawater temperatures.

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## Abstract

Hard tissues such as fish scale and otoliths are continuously deposited from fish birth to its death. Therefore hard tissues are recording information that fish experienced. In order to investigate the information, scale circuli and trace elements in otoliths of red sea bream, *Pagrus major*, were analyzed. Scale circuli were counted to investigate a relation between circuli deposition and temperature. Trace element concentration were analyzed by Particle Induce X-ray Emission (PIXE). These studies showed that there were some relations between hard tissues formation and ambient seawater temperatures.