

**Migratory behaviors of
Japanese eel *Anguilla japonica*
using trace elemental
distributions in otolith by LA-
ICP-MS**

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Line scan analysis using a laser ablation inductively coupled plasma mass spectrometer (LA-ICP-MS) provides more information about the elemental distribution in heterogeneous matters than spot analysis. Fish otoliths have been shown to be particularly useful natural tags because they are paired calcareous structures in the inner ear of fishes that are formed by the sequential addition of inner layers of calcium carbonate, usually in the form of aragonite, from birth to death [1]. Because vaterite inclusions in otolith have been found in almost half of the eels, if vaterite in otoliths is not identified and avoided, the migratory history of fish could be misidentified [2]. This experimental study elucidates a method of constructing 2-D compositional ratio maps in small fish otoliths using a series of line scans. The contribution was focused on the utilization of LA-ICP-MS for visualizing elemental ratios in otoliths to monitor different Ba, Sr and Ca distributions, and their ratios (i.e., Ba/Ca and Sr/Ca). The mapping technique proposed in this study will be a good alternative to reduce the misidentification.

[1] Campana (1999) Mar. Ecol. Prog. Ser 188, 263-297 [2] Tzeng et al. (2007) Mar. Ecol. Prog. Ser 348, 285-295