

## Growth history of cultured pearl oysters based on stable oxygen isotope analysis

# Rei Nakashima[1]; Nozomi Furuta[2]; Atsushi Suzuki[3]; hodaka kawahata[4]; Naotatsu Shikazono[5]

[1] GSJ, AIST; [2] AVC, Sharp Co.; [3] GSJ/AIST; [4] ORI, U of Tokyo; [5] Keio

We investigated the oxygen isotopic ratio in shells of the pearl oyster *Pinctada martensii* cultivated in embayments in Mie Prefecture, central Japan, to evaluate the biomineralization of the species and its pearls in response to environmental change. Microsamples for oxygen isotope analysis were collected from the surfaces of shells (outer, middle, and inner shell layers) and pearls. Water temperature variations were estimated from the oxygen isotope values of the carbonate. Oxygen isotope profiles of the prismatic calcite of the outer shell layer reflected seasonal variations of water temperature, whereas those of nacreous aragonites of the middle and inner shell layers and pearls recorded temperatures from April to November, June to September, and July to September, respectively. Lower temperatures in autumn and winter might slow the growth of nacreous aragonites. The oxygen isotope values are controlled by both variations of water temperature and shell structures; the prismatic calcite of this species is useful for reconstructing seasonal changes of paleotemperature.