

## RECORDS OF LIFE-HISTORY INFORMATION PRESERVED IN THE SHELL MICROGROWTH PATTERNS

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Analyses of life-history patterns, such as absolute growth and reproduction, in extant and fossil organisms, constitute an integral part of the understanding of evolution. Organisms with accretionary skeletons, such as bivalves, record life-history information within their shell microstructure. As a basis for reconstructing life-history patterns from extant and fossil bivalve shells, detailed analysis has been made on the winter breaks and spawning breaks recorded in the shell microgrowth pattern of the venerid bivalve *Phacosoma japonicum* from Japanese coasts.

In the individuals from Tokyo Bay, central Japan, gonads of both male and female ripen between June and July, and spawning occurs during late June to early August. While shells of juveniles grow most rapidly between June and July, matured individuals suddenly cease shell growth just before spawning, and they resume shell growth just after spawning. This temporary cessation of shell growth produces a spawning break in the shell microstructure. After the onset of sexual maturity, spawning breaks appear annually in the individuals from Tokyo Bay. Similar results were obtained from the individuals in Hakodate Bay (northern Japan) and Kagoshima Bay (southern Japan), although their age of sexual maturity are different from that in Tokyo Bay. These results indicate that spawning breaks are useful in reconstructing sexual maturity patterns of bivalves.

Spawning breaks and winter breaks were also preserved in fossil specimens of *Phacosoma japonicum* from the late Pleistocene Kioroshi Formation, central Japan (ca. 0.12 Ma), and it can be guessed that the age of sexual maturity of this fossil sample was four years-old. Future investigations on shell microincrement sequence of the fossil specimens will make clear the spatial and temporal variations of the life-history traits of this species.