



## **A new deep-sea pectinid bivalve from thermal vents of Manus back-arc Basin (south-western Pacific), *Sinepecten segonzaci* n. gen., n. sp. (Pectinoidea: Pectinidae), and its relationships with the genera *Bathypecten* and *Catillopecten***

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### **Abstract**

*Sinepecten segonzaci* new genus and new species is described from a thermal vent environment in the Manus back-arc basin, North of New Guinea (south-western Pacific) at 1620–1680 m depth. *Sinepecten segonzaci* has close affinities with species of the genera *Bathypecten* and *Catillopecten*. It differs from the living fossil *B. vulcani* Schein-Fatton, 1985 from hydrothermal vents of the East Pacific Rise (13°N, 2630 m) in its ornamentation and in two main derived characters of the right valve: a prismatic shell microstructure is restricted to the juvenile stage and there is a specialized byssal notch in the new genus and species. Characters, shell ontogeny and biogeography of the three genera *Bathypecten*, *Catillopecten* and *Sinepecten* are compared to discuss their place in pectinid evolution.

**Keys words:** *Sinepecten segonzaci*, new taxa, ontogeny, hydrothermal vents, back-arc basin, Western Pacific, Bivalvia, Pectinidae

### **Introduction**

Representatives of the Pectinidae (sensu Schein 1989), a family with likely Paleozoic origins, colonize hard or soft substrates at all depths of the ocean, from littoral to abyssal plains. They are generally attached by a byssus or are free-living, and can swim by repeatedly clapping their valves. Among extant species, *Bathypecten vulcani* Schein-Fatton, 1985 displays a unique combination of some characters featured in the oldest known fossil taxa. *Bathypecten vulcani* was discovered near hydrothermal vents on the East Pacific Rise (Schein-Fatton 1985, 1988). The genus *Bathypecten* is not restricted to hydrothermal vents. There are species within the genus that live in the normal abyssal