

# **The taxonomy and biogeography of macrofaunal ostracod crustaceans, with focus on the abyssal benthic Pacific fauna relevant to the CCFZ**

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## Abstract

Ostracods inhabit all aquatic environments on the planet, from the shallow temporary freshwater puddles to the abyssal ocean depths. The main ostracod characteristic is the bivalve, dorsally hinged, calcified shell. There are over 65.000 fossil species, with the oldest record dating back to Ordovician, and 8.000 living species described so far. Ostracods are relatively small animals, with the body length ranging between 0.2 mm and 3 cm, and are also characterized with a very simple body plan, consisting of maximum eight appendages. Their shell is an important taxonomic character, as it can be ornamented in many different ways, but intraspecific variability in its morphology is not rare and is often dependent on environmental conditions.

Deep-sea ostracod faunas have been relatively well studied in the North Atlantic, in the Mediterranean, and, to a lesser extent, in the Arctic and Western Pacific Oceans. The remaining regions, including the Indian Ocean, the Northeastern Pacific, and the equatorial and tropical Western Atlantic remain poorly sampled, so the biogeography of this group is practically unknown. Most of our current knowledge of the deep-sea ostracods has been derived from fossils or empty valves because of a low density of living specimens in the deep ecosystems, and the inadequacy of the sampling techniques. According to our current knowledge, the Recent deep sea ostracods belong to 37 families, approximately 200 genera and about 500 species. Although cosmopolitan distribution has been proposed for many deep-sea ostracods, more recent studies based on molecular markers and careful studies of the soft parts, contradict this, suggesting that the apparent cosmopolitanism is just an artefact of our incomplete taxonomic knowledge.