

The Decapoda (Crustacea) as predators on Mollusca through geologic time

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ABSTRACT

The relationship between predator and prey is a persistent theme in marine paleontology. Herein we focus on the decapod Crustacea, the shrimps, lobsters, and crabs, and their role as predators on the Mollusca through geologic time. Five major means by which decapods crush shells or eat shelled prey might be recorded in the body-fossil record, as they require specialization of the appendages. These include use of (1) heterochelous first pereopods, (2) molariform teeth on the fingers of the chelae, (3) a curved proximal tooth on the movable finger of the chela, (4) calcified mandibles, and (5) flattened pereopods (walking legs). Decapods have had adaptations for durophagous predation on mollusks since the early Triassic. Durophagous adaptations had appeared among multiple clades by the Late Cretaceous. The myriad means by which decapods prey upon Mollusca, and the multiple uses for which pereopods and other appendages are adapted, suggests that predation studies should incorporate more decapod types and more types of predation when examining predation as a driver of evolution.