

# 4 Developmental biology of squat lobsters

*Keiji Baba, Yoshihisa Fujita, Ingo S. Wehrtmann and Gerhard Scholtz*

## ABSTRACT

This chapter overviews embryonic and larval development of squat lobsters, as well as egg size, fecundity, larval dispersal and recruitment. Coverage of embryonic development is focused on *Galathea* and *Munida*, leaving extensive studies to be done on early cleavage and on other genera, especially those having large eggs. As in other decapod crustaceans, the larval development of squat lobsters is referable to either the 'regular' type or the 'abbreviated' type, reflected by egg size. Morphological characteristics of larvae and their changes during larval development are summarised for each genus. Additionally, a key to the first zoeae of squat lobster genera is provided. Larval dispersal and recruitment pattern of *Munida gregaria*, *Pleuroncodes planipes* and *P. monodon* are briefly mentioned in the context of early life history.

## KEYWORDS

Development, eggs, larvae, zoea, megalop, recruitment.

## INTRODUCTION

Developmental biology includes embryonic and larval (postembryonic) developments. This chapter also

refers to egg size and fecundity, the former of which is closely related to the larval development and the latter of which also pertains to egg size. Larval dispersal and recruitment is referred to in the chapter, to help understand the early life history of squat lobsters. Notwithstanding the relatively numerous taxa of squat lobsters known so far, information on their developmental biology is very limited, largely because material is difficult to procure due to inaccessible habitats or small populations that do not allow closer observation or quantitative analyses.

## EGG SIZE AND FECUNDITY

Size of eggs usually reflects the mode of larval development. Small eggs undergo regular development and the larvae of early stages are planktotrophic (plankton feeding), whereas large eggs may indicate abbreviated development, and the larvae are lecithotrophic (yolk feeding) or have non-functional mouthparts (see below under Larval Morphology).

With their study of museum collections on egg size (in volume, mm<sup>3</sup>), body size, brood size and depth of occurrence, Van Dover and Williams (1991) pointed out a strict dichotomy in egg size that corresponds to generic classification of species, not to